EXHIBIT 22

CALIFORNIA
Water Boards

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DATE: 7 December 2020

SUBJECT: Review of *Revised Storm Water System Investigation Findings Report*, California Department of Corrections and Rehabilitations, Mule Creek State Prison, Amador County

1: Background and Introduction

On 14 February 2018 the Assistant Executive Officer issued a Water Code 13267 Order based on sample results from the stormwater system that contained both domestic and industrial waste constituents. The 13267 Order required, in part, that the California Department of Corrections and Rehabilitation (CDCR, Discharger) submit a workplan to investigate the stormwater system and submit a report describing the findings of that investigation. The 13267 Order contained specific requirements for the *Storm Water Collection System Investigation Findings Report*. On 15 March 2018 CDCR submitted the *Storm Water System Investigation Workplan* (Investigation Workplan) for the Mule Creek State Prison facility (MCSP). Board staff conditionally approved the workplan on 26 March 2018 (Conditional Approval). The Discharger submitted a letter of concurrence with those conditions prior to initiating the described work. On 17 August 2018 the Discharger submitted the *Storm Water Collection System Investigation Findings Report*. Board staff met with the Discharger several times and provided draft written comments (Draft Comments) on this report in October 2018. In response to those comments the Discharger performed additional investigations, culminating in a *Revised Storm Water Collection System Investigation Findings Report* (Report) submitted on 1 November 2019.

While the investigation was being conducted the Executive Director of the State Water Resources Control Board adopted Water Quality Order 2013-0001-DWQ on April 24, 2019, which directed MCSP to submit a Notice of Intent to apply for coverage under the Small MS4 General Permit. The Discharger complied, and the facility is currently covered under the Small MS4 General Permit.

2: Review of Findings and Evaluation of Investigation Completeness

Board staff has reviewed the Report and found that the Discharger has identified several likely sources non-stormwater flows entering the stormwater system, as well as potential sources of the documented waste constituents. The Discharger concludes with several recommendations based on these findings.

Board staff's review of the Report presented below evaluates compliance with each requirement of the investigation based on the 13267 Order and the conditional approval of the investigation workplan. The review also includes Board staff's analysis of the data presented in the Report and a comparison of CDCR and Board Staff's conclusions and recommendations based on that data.

2.1: Stormwater and Sanitary Sewer Collection Systems Survey and Mapping

The Discharger appears to have thoroughly mapped the stormwater collection system. In response to the Draft Comments regarding the condition of the sanitary sewer system, the sewer system was also mapped to some extent, roughly between the edge of the buildings to the edge of the perimeter fence. The sewer lines that were mapped and investigated consist almost entirely of plastic pipe, whereas the Discharger has stated that sewer pipes under the buildings were constructed with ductile iron pipe. Board staff has previously voiced concerns regarding the condition of the ductile iron sewer pipes under the buildings. This is still a major concern, and is discussed further below.

A major finding of the survey and mapping is that the sanitary sewer system was constructed above the stormwater system in most areas of the prison. In some areas the pipes buried very short distanced from each other, both vertically and horizontally. The Report states that in many areas the vertical separation is within just a few feet:

"*The vertical separation of the lines at the crossing is within 1 foot, with the stormwater collection line likely underneath the sanitary sewer because invert elevations at the crossings are nearly identical.*"

"*The vertical separation between the stormwater collection line and sanitary sewer ranges from approximately 0.3 feet to 1.2 feet below the sanitary sewer line between the SSMH-105 to SSMH-107 segment. In this segment, the sanitary sewer line is at a higher elevation compared with the stormwater collection line.*"

"*The vertical separation between the stormwater collection and sanitary sewer lines ranges from approximately 4 feet at SSMH-109 to less than 1 foot at SSMH-105, with an average of 2 feet of vertical separation in the segment between SWMH-507A and SWMH-507B*"

The Report indicates that horizontal separation between sewer and stormwater lines can be as little as 4 feet in some sections, and in general they are within 7 and 25 feet when running in parallel.

The Report acknowledges that indirect cross connections between the two systems is possible given their close proximity. However, it concludes this is unlikely due to the horizontal distances between the pipes, the gravity flow nature of the systems, lack of co-located pipe defects, and the clay type soils. This analysis does not take into account the for the fact that groundwater data shows the systems are below the water table, the existence of multiple French drain segments in the stormwater system, or the potential conduits created when pipe trenches were backfilled with material that could be more hydraulically conductive than native clays. Some CCTV footage shows gravel visible through defects in the pipe. Board staff believe that these factors are aiding in the formation of indirect cross connections.

2.2: Maintenance Logs and Timeline of Changes

The review of stormwater system maintenance logs revealed only jetting and unblocking activities. There were no records of repairs or breaks in the system. It was noted that an area incorrectly referred to as a wash pad had been plumbed to the stormwater system. It was not described what wash down activities occurred, or what processes or equipment they were associated with. The area was replumbed to the sanitary sewer in November 2017, during the time frame of the initial complaint. The drain line was later capped and water supply shut off in July 2018 to prevent wash down activities in this location.

The review of sanitary sewer system maintenance logs revealed primarily jetting and auguring to clear blockages, and also included 3 pipe breaks and subsequent repairs in 2014 and 2015. These logs did not appear to include the numerous issues verbally discussed by CDCR staff in the field or in meetings related to the hydronic loop pipe breaks. The hydroponic loop was a separate underground pressurized pipe system that delivered near boiling hot water from a central boiler to various buildings in the Old Prison facility. Several CDCR staff, including the Deputy Warden, stated on multiple occasions that pipe breaks within the hydroponic loop had occurred intermittently for years. These breaks resulted in the subsurface discharge of pressurized near boiling water, which boiled to the surface and melted other nearby underground plastic pipes and utilities including the sanitary sewer and stormwater systems. This was supported by defects observed in the CCTV footage, as well as by video evidence from the original complaint showing steaming hot water discharging from stormwater laterals into the perimeter ditch during dry weather conditions. The Report provides further evidence, identifing 11 areas where bulging of pipes exist in the sewer system, and in some cases 80% of the pipe was obstructed. However, the Report concludes that none of the bulges have created holes or cracks in the pipes. Board staff is concerned that these pipe breaks and possibly repairs have not been adequately addressed and documented.

A list of major changes to the systems was also provided:

- The hydronic loop was taken out of service in April 2018;
- Procedures to shut down the leaking pressurized irrigation system when not in use during 2019;
- A facility wide memorandum prohibiting wash down of paved areas and other illicit discharges to the stormwater system in 2018.

While all these changes are good steps to reducing non-stormwater flows in the stormwater system, it is unclear how effective the memorandum will be and where washdown procedures now take place. The Discharger has stated in the past that it is difficult to prevent these practices due to the "size and attitude" of the prisoner population. This issue will need to be addressed more aggressively going forward under the MS4 permit.

2.3: Stormwater Collection and Sanitary Sewer Collection Systems Physical Assessments

2.3.1: Closed Circuit Television (CCTV) of Stormwater and Sanitary Sewer Systems

Between 2018 and 2019 the Discharger inspected approximately 35,000 lineal feet of sanitary sewer system and 24800 lineal feet of stormwater system. Hundreds of defects were noted in each system, but many were described as "seal intact", "seal likely intact", "invert intact", "corrosion minor", etc. Board staff has reviewed the list of defects and summarized the number of defects in each system below that are likely contributing to infiltration and exfiltration of the systems. The defects summarized include pipe breaks, holes, and joint separations or defects noted as "appears compromised", "likely compromised", "seal possibly poor", etc. It should be noted that the vast majority of the plumbing under the buildings which primarily consists of small diameter ductile or cast iron pipe (both are referenced in the Report) was not investigated, and therefore is not captured here.

Table 1: Summary of Defects Likely to Cause Infiltration or Exfiltration

	Joint Defects/ Separations, Roots, and Likely Compromised Seals	Pipe Breaks, Cracks, and Holes	Joint Defects/Separations, Cracks, and Holes where Soil was Visible	Infiltration Staining (no specific defect)	Active Infiltration	Perforated Pipes including French Drains
Stormwater System	90	34	32	18	4	6
Sanitary Sewer	60	22	13	8	3	N/A

The Report states, in part, the following major findings related to the stormwater system:

- No direct cross connections between the sanitary sewer and stormwater system were discovered;
- The system exhibits defects consistent with aging infrastructure, proximity to former hot water hydronic lines, and some poor installation practices;
- Discovery of a slotted pipe in the stormwater system between SWMH-509 and SWMH-510 with groundwater dripping into the stormwater collection line;
- CTC building French drain and sump pumps that both direct groundwater into the stormwater collection system;
- Communication/electrical vault sump pumps discharge infiltrating groundwater to the stormwater collection system. Sample results showed waste constituents present in vault water;
- Documented subsurface leaks in the irrigation system supported by relationship between when the irrigation system is charged and measured flow in the stormwater collection system;
- Numerous cracks and joint defects likely contribute minimal infiltration.

The Report states, in part, the following major findings related to the sanitary sewer system:

- The entire sanitary sewer line from SSMH-210 to SSMH-205 is undersized and in poor condition;
- Several large segments of the sewer have large joint separations that presents a potential threat to impact groundwater;
- Deformations caused by the hydronic loop are not sources of exfiltration.
- Joint defects were the most prevalent type of defect system;
- No significant corrosion was observed in the ductile iron lateral lines located under the buildings. Moderate corrosion was discovered, and all pipe appears to be intact;
- PVC-to-cast-iron connections where newer housing buildings were tied in to existing sewer systems were poorly installed, leading to significant defects.

Based on Board staffs review of the findings of the Report and the CCTV footage, there are numerous locations in both systems where infiltration and exfiltration are likely occurring. Staining from infiltration and active infiltration was observed in both systems, in addition to large cracks, holes, joint defects, and joint separations where soil was visible were found providing obvious conduits for indirect cross connections. Much of the CCTV work was conducted during the dry season, meaning that the observed active infiltration supports that much of the piping in both systems is submerged in groundwater year-round. Because the perimeter stormwater ditch completely encircles the Old Prison, and because much of both systems within the prison is at a higher elevation than the bottom of this trench, Board staff conclude that groundwater is artificially mounded beneath the Old Prison. This is likely caused by leaks in the sanitary sewer system, stormwater system, irrigation system, and percolating irrigation water.

Additionally, several sections of the stormwater system include perforated pipe by design for sub surface drainage. This provides an additional potential indirect cross connection given the condition of the sanitary sewer system.

Although the Discharger reports that "*the extent of the corrosion observed appeared typical for 30-year-old ductile iron pipe but was not excessive*", and that "*pipe material was observed to be intact*", Board staff's review of the CCTV footage determined that these conclusions are difficult to support from the footage. The corrosion in some areas appeared bad enough on the sides of the pipe to have possibly compromised the invert, but due to debris, deposits, and wastewater in the pipe it is impossible to tell. Additionally, the documented high groundwater is likely causing corrosion on the outside of the pipes as well, further compromising their integrity.

2.3.2: Smoke Test

Smoke testing of the sanitary sewer system revealed 7 locations where smoke escaped through concrete seams in the ground, 2 locations where it escaped through grass in landscaped areas near buildings, and one location near a Stormwater system manhole. Upon inspection it appears the smoke escaped from the sanitary sewer system, traveled subsurface to a location near the Stormwater manhole, and then entered the manhole around the poorly sealed grade ring just below the manhole cover. Although this is not irrefutable evidence of a direct cross connection, it is evidence that an indirect cross connection can form and that more likely exist throughout the collocated systems.

2.3.3: Dye Tests

Dye testing was performed on a several locations around the facility, including the meat processing area and loading docks. No evidence of direct cross connections was found. However indirect cross connections would be difficult to detect using dye, especially in dry weather conditions when the stormwater system has low or very low flows.

2.4: Observed Facility Practices

The investigation identified a list of observed practices that have been contributing non-stormwater flows in the stormwater system. These practices included:

- "*Wash-down of loading docks in Center Corridor (possible use of surfactants)*
- *Vehicle and equipment wash downs (recycle yard)*
- *Dumping of mop buckets outside and/or in stormwater DIs (drop inlets)*
- *Excessive irrigation water runoff*
- *Improper or delayed maintenance of stormwater DIs*
- *Construction practices that impact stormwater DIs*
- *Trash and debris not cleaned in timely manner (Center Corridor, Interior Perimeter, and recycle yard)*
- *Dumpsters leaking (Center Corridor)*

- *Delayed maintenance of asphalt and concrete (Center Corridor and Interior Perimeter Road)*
- *Use of stormwater DI at landscaping yard as a wash pad"*

These practices likely contributed to the detection of waste constituents in the stormwater discharges, including industrial constituents such as surfactants, VOCs (including trihalomethanes), SVOCs, COD, metals, and herbicides.

3: Stormwater System and Sewer System Sampling Results

Approximately 600 water samples were collected from the stormwater system since January 2018. Tables 2 through 8 below summarize the number of samples, number of detections, the detections over applicable water quality objectives, and the maximum concentration detected. Applicable water quality objectives may include Primary MCLs, Secondary MCLs, Basin Plan Objections, Numerical Action Limits, or Public Health Goals depending on the constituent. These are used here qualitatively to evaluate threat to water quality. It should be noted that for some constituents the maximum concentrations noted here were significantly higher than the next highest concentration reported for some constituents. However, based on the variability of the data and the nature of the potential waste sources (i.e. washdown, dumping of mop buckets, etc.) Board staff believe many of these maximum concentrations to be accurate, and not errors. In fact, the large variability of the data suggests true maximum concentrations could be significantly higher. Variation in the dilution of the discharge is also a big factor. This high variability in water quality makes it difficult to determine the exact source of certain waste constituents, the number of detections over the water quality objectives illustrates that threat to surface water and groundwater.

Table 2: General Chemistry Parameters Detection Summary

Constituent	Number of Samples	Number of Detections	Detections Over WQO	Water Quality Objective (mg/L)	Max Concentration (mg/L)
Ammonia	566	59	4	1.5	2.6
Total Alkalinity	560	560	547	20	720
BOD	566	184	8	30	140
Chloride	560	554	1	106	250
Specific Conductance	509	509	1	900	922
Nitrate as N	527	495	1	10	12
Nitrite as N	514	205	2	1	4
pH (ph Units)	510	510	45	6.5-8.5	5.75, 11
Settleable Solids	508	61	1	1	7
TDS	560	560	3	500	800
TSS	566	499	45/13	100/400	4200
Phosphorus	515	441	441	0.0001	11

BOD, nitrate, nitrite, and phosphorous are typical of domestic wastewater, especially at higher concentrations like those seen at maximum concentrations. Alternatively, high alkalinity and pH is typical of many industrial waste streams. Ammonia is a common constituent in both domestic wastewater and cleansers. In particular, the frequency at which BOD, pH, and phosphorous concentrations exceeded water quality objectives indicate that the discharge from the stormwater system is a threat to water quality. The Report suggests that the high phosphorous may also be a byproduct of the "the extensive use of glyphosate" at the facility (see comments on Table 5 below).

Table 3: Microbial Parameters Detection Summary

Constituent	Number of Samples	Number of Detections	Detections Over WQO	Water Quality Objective (MPN/100ml)	Max Concentration (MPN/100ml)
Total Coliforms	571	568	N/A	N/A	>160,000
Fecal Coliforms	571	551	534	200 MPN/100ml	160,000
E. Coli	581	559	553	N/A	72,700

Although, as the Report states, coliforms can come from many sources other than human waste, it is important to note that the Basin Plan Water Quality Objective of a 200 MPN/100ml geometric mean (based on no less than 5 samples over 30 days) for fecal coliforms in surface water does not specify that the limit is restricted to human sources. Fecal coliforms, regardless of source, are subject to this Water Quality Objective. Nearly 95% of the almost 600 samples collected from the stormwater system are higher than this objective. Regardless of whether these detections are caused by human waste or not, they indicate a threat to water quality and must be addressed.

Table 4: Total Metals Detection Summary

Constituent	Number of Samples	Number of Detections	Detections Over WQO	Water Quality Objective (ug/L)	Max Concentration (ug/L)
Aluminum	563	563	253	200	470000
Antimony	509	79	1	6	16
Arsenic	561	536	86	10	30
Chromium	561	398	5	50	120
Iron	563	517	391	300	140000
Lead	561	179	3	15	160
Magnesium	563	562	562	64	50000
Manganese	509	328	84	50	1400
Molybdenum	390	384	6	10	12
Nickel	509	475	1	100	120
Sodium	561	561	247	20000	218000
Vanadium	435	407	5	50	160

The majority of metals detected were either typical industrial stormwater constituents or were infrequently detected over the applicable water quality objective. Aluminum, iron, and magnesium are common at industrial sites and naturally occurring in soils underlying the site. The relatively common exceedances of water quality objectives for arsenic, copper and manganese were not explained.

Sources were not identified for other metals that had high maximum concentrations but infrequently exceeded water quality objectives, such as nickel, vanadium, and chromium.

Table 5: Industrial Stormwater Parameters Detection Summary

Constituent	Number of Samples	Number of Detections	Detections Over WQO	Water Quality Objective	Max Concentration
COD (mg/l)	510	298	27	120	11000
MBAS (mg/l)	515	186	12	0.5	13
Oil & Grease (ug/l)	562	203	0/4	15/255	650
TPHD (ug/l)	562	99	92	56	1600
TPHG (ug/l)	250	1	1	5	64
Caffeine (mg/l)	2	2	N/A	N/A	230
Glyphosate ug/L	4	4	4	700	2100
Tryiclopyr	4	1	N/A	N/A	17.7

Chemical oxygen demand (COD) varied greatly in the sample data, from non-detect to 11,000 mg/L. High COD is common in industrial wastewater, and these fluctuating concentrations suggest slugs of industrial wastewater caused by poor washdown practices or possible dumping of wastes. The detections of MBAS indicates surfactants, which are also point to poor equipment cleaning and washdown practices.

Oil and Grease, Diesel, and gasoline range organics suggest poor housekeeping practices related to the vehicles and other engine powered equipment being operated or maintained outside.

Caffeine was detected in both of the stormwater samples analyzed, with a maximum of 230 mg/L. The source is almost certainly industrial wastewater or associated washdown water from the coffee roasting operation on site. For reference, Starbucks brewed coffee has a caffeine concentration of approximately 912 mg/L[1]. Even diluted, the stormwater contained roughly a quarter of the caffeine concentration as a cup of coffee at that time. This is clear evidence of a significant amount of industrial waste entering the stormwater system.

Tryiclopyr and glyphosphate were detected in irrigation runoff from the yards. Glyphosate was detected at 3 times the MCL (2100 ug/L). Although this was dismissed as an outlier, this is not statistically appropriate given the sample size of 4, with one of the other sample results being nearly double the MCL (1300 ug/L). This is likely caused by the “extensive use” of glyphosate as an herbicide at the facility, which is described briefly in the Report.

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1 https://www.caffeineinformer.com/the-complete-guide-to-starbucks-caffeine

Table 6: Volatile Organic Compounds Detection Summary

Constituent	Number of Samples	Number of Detections	Detections Over WQO	Water Quality Objective (ug/L)	Max Concentration (ug/L)
Benzene	561	2	0	1	0.42
Toluene	561	4	0	40	1.7
Ethylbenzene	561	2	0	30	1.7
Total xylenes	561	6	0	20	4.8
Chloroform	457	26	0	80	11
Bromoform	457	2	0	80	2.1
Dibromochloromethane	457	1	0	80	0.97
Bromodichloromethane	457	1	0	80	0.78
Dichlorodifluoromethane	457	3	0	0.19	5.5
Trichlorofluoromethane	457	1	0	150	1.1
Acetone	457	51	0	300	33
Methyl Ethyl Ketone	457	7	0	4000	1.8
Naphthalene	457	2	0	0.29	0.71

13 species of VOCs were detected, including refrigerants, solvents, and disinfection byproducts. Of the 108 detections of VOCs 51 were acetone which is a common solvent related to industrial activity. Although acetone is also a common lab contaminant, CDCR staff stated they worked with their lab to confirm these detections were accurate, and believe they are not caused by lab contamination. Acetone is also common in industrial degreasers and cleaners which are commonly used at the facility in its industrial processes, as described in the WDRs. Another 26 were chloroform, which is a disinfection byproduct common in treated drinking water. Results from the domestic water supply sampling showed the average chloroform is the source water had a maximum concentration of 27 ug/L, over double what was detected in the stormwater system. Because this is the source potable water for the entire facility, and chloroform volatilizes and breaks down over time, this information is not detailed enough to determine if the source of chloroform in the stormwater is irrigation runoff or infiltration from leaking sewer or potable water pipes. Most likely it is some combination of these things based on the various other waste constituents detected. While the presence of VOCs in stormwater is evidence of non-stormwater sources, only a handful of detections exceeded Water Quality Objectives.

Table 7: Semi Volatile Organic Compounds Detection Summary

Constituent	Number of Samples	Number of Detections	Detections Over WQO	Water Quality Objective (ug/L)	Max Concentration (ug/L)
Benzoic Acid	365	4	0	28000	11
Bis (2-chloroethyl) ether	365	2	2	0.014	0.53
Bis (2-ethylhexyl) phthalate	365	6	5	4	18
Butyl benzyl phthalate	365	2	2	0.1	13
Di-n-butyl phthalate	365	10	2	3	3.1
Di-n-octyl phthalate	365	1	1	3	3
Diethyl phthalate	365	13	0	3	1.2
Pentachlorophenol	365	3	3	1	10
Phenol	365	1	1	1	1.4

Semi volatile organic compounds were detected infrequently, but a relatively large portion of those detections exceeded water quality objectives. This is due to water quality objectives being very near the detection limit of the analytical methods. No source of the SVOCs was identified in the Revised Findings Report. Typical sources include various industrial and agricultural activities.

4: Surface Water Sampling from Mule Creek

The Report had limited data for upstream and downstream data from 18 paired samples. Given the transient and variable nature of surface water sampling, especially during rain events when the facility was discharging to Mule Creek, it is difficult to evaluate the full effect of the impacts on the creek with this small data set.

The Report analyzed the data sets as a whole, relying on averages, maximum concentrations, and the number of times water quality objectives were exceeded to determine impacts to the creek. Averaging data is not appropriate for determining the impact that the facility's discharge has on the creek during discharge, especially given the variable character of the discharge and high maximum concentrations seen in the stormwater sampling data. Upstream/downstream sample sets for individual events should be compared in order to accurately establish impacts for a single discharge event.

Paired upstream and downstream samples collected during wet weather discharge events clearly show there are significant impacts to downstream water were occurring, even when the discharge is diluted by runoff. Tables 8, 9, and 10 below summarize a subset of that data and demonstrate those impacts by comparing upstream/downstream sample pairs. Values in bold indicate downstream concentrations that are high than the upstream counterparts in the same sample pair.

Table 8: Organic and Microbial Constituents Comparison in Mule Creek during Discharge

		Organic Constituents		Microbial Constituents		
Date	Sample Location in Mule Creek	Oil and Grease (mg/l)	Volatile Organic Compounds (ug/L)	Fecal Coliforms (MPN/100mls)	Total Coliforms (MPN/100mls)	E. Coli (MPN/100mls)
3/23/18	upstream	1.3	--	>1,600	>1,600	>1,600
	downstream	1.3	--	>1,600	>1,600	>1,600
4/6/18	upstream	<5.0	ND	240	> 1,600	151.5
	downstream	1.4 J	ND	**> 1,600**	> 1,600	**>2419.6**
4/7/18	upstream	2.3 J	ND	> 1,600	> 1,600	>2,419.6
	downstream	1.7 J	ND	> 1,600	> 1,600	1,732.90
4/11/18	upstream	<5.0	ND	49	> 1,600	118.7
	downstream	<5.0	ND	**130**	350	**172.2**
4/27/18	upstream	<5.0	ND	170	1,600	113.7
	downstream	2.9J	ND	**540**	> 1,600	**178.9**
5/25/18	upstream	<5.0	ND	1,600	>1,600	1,986.30
	downstream	<5.0	**acetone = 5.5**	>1,600	>1,600	**>2,419.6**
5/26/18	upstream	1.5 J	ND	>1,600	>1,600	1,986.30
	downstream	**2.8 J**	**acetone = 2.7 J; chloroform = 1.1**	>1,600	>1,600	**>2,419.6**
12/17/18	upstream	<5.0	ND	3500	24000	1553
	downstream	1.7 J	ND	**11,000**	**>160,000**	**1,986.30**
12/26/18	upstream	<5.0	ND	540	9200	387
	downstream	<5.0	ND	**2200**	**24000**	**1046**
1/5/19	upstream	2.1 J	ND	79	2600	50
	downstream	Not sampled	Not sampled	Not sampled	Not sampled	Not sampled
1/15/19	upstream	<5.0	ND	240	16000	86
	downstream	1.4 J	ND	**4600**	16000	**1986**
1/20/19	upstream	<1.4	ND	2200	11000	1203
	downstream	<1.4	ND	>1,600	**160000**	**2790**
2/2/19	upstream	1.4 J	ND	1700	16000	1203
	downstream	<1.4	ND	**3500**	**28000**	**2320**
2/10/19	upstream	1.7 J	ND	1700	16000	1203
	downstream	<1.4	ND	920	**35000**	**3550**
2/13/19	upstream	<1.4	ND	3500	35000	3130
	downstream	<1.4	ND	2300	13000	770
2/26/19	upstream	<1.4	ND	1100	2200	1300
	downstream	<1.4	ND	540	**17000**	365
3/20/19	upstream	1.6 J	ND	33	920	98.5
	downstream	<1.4	ND	**220**	**1400**	101
3/27/19	upstream	1.5 J	ND	310	5400	193
	downstream	<1.4	ND	130	2400	57.6
4/5/19	upstream	2.8 J	ND	140	9200	114
	downstream	**3.2 J**	ND	**220**	2600	96

Table 9: General Parameters Comparison in Mule Creek during Discharge

		General Parameters				
Date	Sample Location in Mule Creek	Total Dissolved Solids (mg/L)	Turbidity (NTUs)	Sulfate as SO4 (mg/L)	Total Nitrogen (mg/L)	Biological Oxygen Demand (mg/L)
3/23/18	upstream	130	24	7.7	0.63	<10
	downstream	**150**	**26**	**8.2**	**0.69**	<10
4/6/18	upstream	190	3.9	17	1.1	2.0J
	downstream	**220**	**23**	**26**	**1**	**2.8J**
4/7/18	upstream	120	30	7.2	1.1	3.4J
	downstream	**140**	**40**	**9.3**	**1.2**	3.4J
4/11/18	upstream	210	1.9	13	<1.0	<5.0
	downstream	**220**	**5.6**	**15**	<1.0	<5.0
4/27/18	upstream	250	1.1	16	<1.0	<5.0
	downstream	**260**	**1.8**	**18**	<1.0	<5.0
5/25/18	upstream	260	0.79	12	<1.0	<5.0
	downstream	120	**68**	**39**	**3.4**	**7.1**
5/26/18	upstream	250	0.54	11	<1.0	<5.0
	downstream	120	**56**	**26**	**1.8**	2.9J
12/17/18	upstream	470	Not Analyzed	100	<1.0	<5.0
	downstream	170	Not Analyzed	36	**3**	3.7 J
12/26/18	upstream	220	Not Analyzed	75	1	<5.0
	downstream	**380**	Not Analyzed	18	**1.3**	2.0 J
1/5/19	upstream	340	Not Analyzed	50	<1.0	<5.0
	downstream	Not Sampled	Not sampled	Not sampled	Not sampled	Not sampled
1/15/19	upstream	270	Not Analyzed	39	<1.0	<5.0
	downstream	130	Not Analyzed	30	**1.8**	3.7 J
1/20/19	upstream	170	Not Analyzed	16	3	<2.0
	downstream	**180**	Not Analyzed	**21**	2.2	2.1 J
2/2/19	upstream	220	Not Analyzed	23	1.9	3.6 J
	downstream	160	Not Analyzed	**26**	1.4	2.8 J
2/10/19	upstream	120	Not Analyzed	10	1.8	2.5 J
	downstream	**130**	Not Analyzed	**12**	1.8	2.2 J
2/13/19	upstream	150	Not Analyzed	13	1.8	<2.0
	downstream	130	Not Analyzed	12	1.2	<2.0
2/26/19	upstream	160	Not Analyzed	16	1.4	<2.0
	downstream	**170**	Not Analyzed	**22**	1.2	<2.0
3/20/19	upstream	190	Not Analyzed	16	<0.20	<2.0
	downstream	**200**	Not Analyzed	**21**	<0.20	<2.0
3/27/19	upstream	160	Not Analyzed	15	<0.20	<2.0
	downstream	**190**	Not Analyzed	**17**	<0.20	<2.0
4/5/19	upstream	180	Not Analyzed	14	3.7	<2.0
	downstream	**200**	Not Analyzed	**17**	1.3	<2.0

Table 10: Metal Constituents Comparison in Mule Creek during Discharge

Date	Sample Location in Mule Creek	Aluminum (ug/L)	Chromium (ug/L)	Copper (ug/L)	Iron (ug/L)	Lead (ug/L)	Manganese (ug/L)	Zinc (ug/L)
3/23/18	upstream	940	3.7	–	1200	<1.0	36	6.3
	downstream	**1200**	3.5	–	**1300**	**1.4**	28	5.7
4/6/18	upstream	110	<2.0	2.4	320	<1.0	31	<20
	downstream	**620**	<2.0	**3.5**	**700**	0.81J	**36**	9.2J
4/7/18	upstream	1000	5.3	6.4	2300	0.66J	83	<20
	downstream	**1800**	**6**	**8**	**3200**	**4**	**87**	9.0J
4/11/18	upstream	45	<2.0	2.2	190	<1.0	<20	<20
	downstream	**140**	<2.0	**2.5**	**410**	<1.0	**27**	<20
4/27/18	upstream	<40	<2.0	<2.0	<100	<1.0	30	<20
	downstream	29J	<2.0	–	**180**	0.24J	<20	<20
5/25/18	upstream	<40	<2.0	<2.0	<100	<1.0	43	<20
	downstream	**1600**	**4.1**	**15**	**2100**	<1.0	**76**	**180**
5/26/18	upstream	<40	<2.0	<2.0	<100	<1.0	13J	<20
	downstream	**1200**	**3.8**	**14**	**1800**	0.67J	**34**	**70**
12/17/18	upstream	<40	<2.0	Not Analyzed	<100	<1.0	Not Analyzed	<20
	downstream	**380**	<2.0	Not Analyzed	**4800**	**1.6**	Not Analyzed	**49**
12/26/18	upstream	39J	<2.0	Not Analyzed	70 J	2.2	Not Analyzed	<20
	downstream	**740**	<2.0	Not Analyzed	**2100**	**24**	Not Analyzed	11 J
1/5/19	upstream	100	<2.0	Not Analyzed	180	<1.0	Not Analyzed	<20
	downstream	Not Sample	Not sample	Not sample	Not sample	Not sample	Not sampled	Not sampled
1/15/19	upstream	20	<2.0	Not Analyzed	<100	<1.0	Not Analyzed	<20
	downstream	**2100**	**5.3**	Not Analyzed	**4300**	**2.1**	Not Analyzed	**130**
1/20/19	upstream	390	<2.0	Not Analyzed	650	0.47 J	Not Analyzed	<8.0
	downstream	**3000**	**4.7**	Not Analyzed	**1900**	**1.1**	Not Analyzed	**37**
2/2/19	upstream	140	<2.0	Not Analyzed	320	<0.24	Not Analyzed	<8.0
	downstream	**2200**	**4.1**	Not Analyzed	**4300**	**65**	Not Analyzed	**17 J**
2/10/19	upstream	580	2.3	Not Analyzed	950	.43 J	Not Analyzed	<8.0
	downstream	**670**	2	Not Analyzed	**1500**	**2.3**	Not Analyzed	<8.0
2/13/19	upstream	440	<5.0	Not Analyzed	830	<0.6	Not Analyzed	<20
	downstream	**2600**	**7.5**	Not Analyzed	**5000**	**30**	Not Analyzed	<20
2/26/19	upstream	61	<2.0	Not Analyzed	150	<0.24	Not Analyzed	<8.0
	downstream	**120**	<2.0	Not Analyzed	**250**	**0.91 J**	Not Analyzed	<8.0
3/20/19	upstream	24 J	<2.0	Not Analyzed	150	<0.24	Not Analyzed	<8.0
	downstream	**49**	<2.0	Not Analyzed	**170**	**0.31 J**	Not Analyzed	<8.0
3/27/19	upstream	28 J	<2.0	Not Analyzed	170	<0.24	Not Analyzed	<8.0
	downstream	**350**	<2.0	Not Analyzed	**840**	**1**	Not Analyzed	<8.0
4/5/19	upstream	160	<2.0	Not Analyzed	430	<0.24	Not Analyzed	<16
	downstream	86	<2.0	Not Analyzed	340	**0.54 J**	Not Analyzed	<16

Additional sampling from regular monitoring of Mule Creek, particularly during dry weather discharge, would be prudent for this facility as they implement the requirements of the MS4 permit.

5: Soil Sample Results

Comparison of background soil sample results to construction excavated soil samples did not show any impacts. Comparison of background soil sample results to perimeter ditch sample showed possible impacts of coliforms and ammonia. These constituents are also commonly detected in stormwater conveyed by the ditch.

6: Molecular Source Tracking Results

The Central Valley Regional Board staff and staff from the State Water Board's Environmental Laboratory Accreditation Program have repeatedly stated on numerous occasions that the molecular source tracking, biomarker analysis, and coliform speciation data is not applicable in determining compliance with Basin Plan Objectives, nor will it be used to make recommendations on enforcement actions. The methods are not EPA certified, as required by Water Code Section §13176 and the Environmental Laboratory Accreditation Program. In fact, an executive from the company that did the analysis for the first round of samples came to one of the meetings between the Regional Board and CDCR and stated that the methods and resulting data are not reliable enough to inform enforcement decisions. The Central Valley Regional Board maintains the position that these analyses are useful tools in narrowing down the sources, but cannot and will not be used to determine compliance with any regulations. Board staff again emphasize that all applicable water quality limits, including the Basin Plan Water Quality Objectives and WDR effluent limits, are for fecal coliforms, not specifically human fecal coliforms. The regulations do not specify the source of the coliforms, as coliforms from any source can impact beneficial uses. Therefore this limit should be enforced regardless of the determined source of coliforms.

7: Review of Report Conclusions

CDCR Conclusion 1: The Report concludes: "*SHN's site investigation efforts did not reveal any direct cross-connections between the stormwater and sanitary sewer collection systems.*"

Board Response: While there was no evidence of direct cross connections between the stormwater and sanitary sewer system, it is clear to Board staff that indirect cross connections have formed between the systems. There are numerous locations documented in the CCTV investigation where major defects in both systems could, and have, allowed infiltration and exfiltration. In several areas active infiltration was noted, even during the dry season with no recent rain. Several other sources of groundwater, including french drains and sump pumps, also are direct sources of groundwater

infiltration. The Report also includes recommendations to make various repairs to both systems to minimize infiltration of groundwater and exfiltration of sewage.

CDCR Conclusion 2: The Report also concludes: "*Additionally, the analytical results provided no evidence that stormwater is comingled with wastewater, sewage, and/or grey water.*"

Board Response: Board staff categorically disagree with this conclusion. Data from the roughly 600 samples clearly shows that waste constituents including VOCs, SVOCs, typical nutrients, metals, coliforms, and other organics, are regularly detected in the stormwater system. Further, over 35,000 lineal feet of sanitary sewer system video and 24,800 lineal feet of Stormwater system video shows significant defects in the sewer and stormwater piping system. This is strong evidence that wastewater of some sort is entering the system, whether through a direct cross connection, indirect cross connection, or through poor washdown/waste handling practices. In numerous cases the waste constituents are above water quality objectives, including MCLs and Basin Plan Objectives. This report provides substantial evidence that discharges from the stormwater system have impacted, and threaten to continue to impact, Mule Creek.

The condition of the sanitary sewer and stormwater system, along with observed practices at the facility, also support the conclusion that some volume of wastewater is entering the stormwater system.

CDCR Conclusion 3: The Report goes on to conclude: "*This investigation has identified the non-stormwater sources to be irrigation and groundwater within the stormwater collection system at MCSP.*"

Board Response: While infiltrating subsurface irrigation water and irrigation water runoff do appear to make up some portion of the non-stormwater flow volume seasonally, it does not explain the waste constituents (other than disinfection byproducts and herbicides) that have been detected numerous times, many of which have over water quality objectives. Groundwater on the other hand has also been shown to be a source of the non-stormwater flow water, and may be contributing waste constituents by providing a conduit for an indirect cross connection between the systems. Many defects were found in the sanitary sewer CCTV investigation, including areas that The Report states "*present a potential threat to groundwater*". Although exfiltration is usually harder to locate than infiltration, there are many locations where the Report states it could or is likely occurring. Additionally, artificially high groundwater exists below the facility. The low conductivity clays, conduits created by backfilled trenches, and recharge through irrigation and exfiltration from the sewer system has likely created a mound of impacted groundwater in which the stormwater system exists. The stormwater system itself contains defects and french drains that allow this impacted groundwater to infiltrate the system and flow out to the creek.

<u>Board Summary of Conclusions:</u> The Report presents clear evidence of high groundwater on the site, including CCTV footage of groundwater infiltration during extended dry weather. However, the Report gives the following explanation for the existence of high groundwater: "*Because groundwater typically mimics the surface topography, the shallow groundwater or perched groundwater likely flows beneath the institution at a similar level*". Again, as Board staff previously stated in the Draft Comments, this interpretation is inaccurate as it makes broad, unsupported assumptions and ignores monitoring well data. Groundwater has been measured in on-site wells at a significantly lower elevation than what is presented in the Investigation Report. The Discharger's first quarter 2018 monitoring report (prepared by a different consultant) presented the potentiometric surface as over 20 feet deeper than what was interpolated in the *Investigation Finding Report*, despite using the same data. The flawed analysis presented in the Report used data from only two wells, one of which was located at the toe of the effluent reservoir, instead of several wells like the analysis in the monitoring report. The high groundwater at the site appears to be artificially mounded based on groundwater elevation data and topography. The Discharger previously proposed and was approved to install three groundwater monitoring wells within the facility perimeter, which would help better understand the hydrology and monitor groundwater likely being impacted by the leaking sanitary sewer system.

8: Review of Report's Recommendations

The Discharger's Report recommends reinitiating the discharge directly to Mule Creek despite the large amount of analytical data showing that various waste constituents have been consistently detected in the discharge. The data presented in the Report does not support this recommendation. The discharge of dry weather flows from the stormwater system as characterized here were clear violations of the Clean Water Act, and these continued discharges are now required to be addressed under the MS4 permit. Even with dilution, data collected during wet weather discharges shows impacts, including VOCs, in downstream samples. Repairs must be completed and Best Management Practices must be implemented in order to adequately protect downstream beneficial uses.

A list of recommended repairs to the stormwater and sanitary sewer system are presented in the Report. These repairs are recommended in order to "*minimize debris, gravel, sediment accumulation and infiltration of groundwater*" in the stormwater system, and "*minimize potential exfiltration of sewage, or infiltration of groundwater*" in the sanitary sewer system. It appears that the list of recommend repairs, found in Appendix 23, is conservative given the list of defects described in the Report. Many if not all of these repairs, along with additional scheduled inspections, are already required under the Sanitary Sewer System General Order which the system is already regulated under. The associated Sewer System Management Plan should also be reviewed, revised according to the findings of this report, and implemented.

The Report further recommends semiannual inspections of some stormwater system features, as well as the continued maintenance of sediment traps, annual training of personnel, and bird abatement efforts.

Finally, the Report recommends the "*cessation of all ordered sampling and associated activities, domestic well monitoring, and development of a final waste disposal plan.*" Board staff does not agree with this recommendation, as no improvements have been made to the site to address the waste constituents detected in stormwater system or the known defects in both systems. Until repairs the sources of those waste constituents and non-stormwater flows are eliminated through implementation of the Small MS4 General Permit and an appropriate proof period has elapsed, Board staff recommends that sampling continue.

9: Board Staff's Conclusions

Based on the review of the *Revised Storm Water System Investigation Findings Report,* Board staff has concluded the following:

1. Indirect cross connections are likely occurring between the stormwater and sanitary sewer systems. The CCTV footage shows many instances of corrosion, defects, joint separations, holes in the plumbing of both systems. The mapping effort also shows these systems are often very near each other, with the sewer system pipes often installed above the stormwater system pipes.

2. Groundwater is artificially mounded under the Old Prison, likely from the known leaks in the stormwater system, sewer system, and pressurized irrigation system. Because of the lower elevation of the stormwater perimeter ditch it is not possible that groundwater is naturally occurring at the elevation that these systems were installed beneath the prison. The only potential source within the perimeter is the Prison itself. There are multiple instances in the CCTV footage showing groundwater infiltrating through defects (not only through French drain segments) in the pipes into both systems during the dry season. This is likely exacerbating these indirect cross connections caused by the numerous defects in those systems. These three systems being in indirect communication explains both the dry weather flows and the various waste constituents detected in the stormwater system.

3. Poor washdown and dumping practices near storm drains within the Old Prison is likely contributing to some of the waster constituents detected.

4. Constituents characteristic of both domestic and industrial waste are detected regularly in the stormwater system discharge. Concentrations of many of these waste constituents fluctuate significantly. This is in direct opposition with CDCR Conclusion 2 above.

5. Paired upstream and downstream samples collected during discharge events clearly show there are significant impacts to downstream water were occurring, even when the discharge is diluted by runoff.

6. Coliforms in the stormwater discharge may be elevated by bird droppings within the prison. However, the source of the coliforms is inconsequential, as the Basin Plan limits for surface water do not specify the source of the coliforms, only the numerical limit.

7. Molecular source tracking is not a reliable enough method to determine compliance, as emphasized by the State Water Board's ELAP staff and one of the laboratories doing the analysis. While data collected using this method can be used as a tool to select potential corrective actions, it should not be used as a line of evidence to determine if a discharge contains human waste. Only EPA approved methods should be used for compliance and enforcement purposes, as is the policy of the Board.

In summary and to reiterate, the monitoring data, condition of the sanitary sewer and stormwater system, artificially high groundwater, and observed practices at the facility support the conclusion that some volume of wastewater is entering the stormwater system via indirect cross connections and poor housekeeping practices.

10: Board Staff's Recommendations

Board staff makes the following recommendations to address the issues discussed in this memo:

1. Reiterate the requirement to immediately cease the discharge of all water containing waste constituents to Mule Creek.

2. Reiterate the requirement to appropriately treat and dispose of all water collected from the stormwater collection system that contains waste constituents.

3. Require monitoring of the stormwater system on a regular basis under the MS4 Permit to determine if corrective actions are effective. Analytes should include industrial waste compounds, domestic waste constituents, and any herbicides or pesticides used on site. In particular, dry weather flows should be sampled.

4. Require any discharge to Mule Creek to be sampled, as well as upstream and downstream locations during the discharge. Constituents analyzed should include should include industrial waste compounds, domestic waste constituents, and any herbicides or pesticides used on site.

5. Require CDCR to submit a workplan to address all pipe defects described in the *Revised Storm Water System Investigation Findings Report.*

6. Require the installation of the groundwater monitoring wells proposed by CDCR within the Old Prison, and additional monitoring devices as necessary, to determine if groundwater is being impacted and to monitor the effectiveness of any implemented corrective actions.

EXHIBIT 23

DIVISION OF ADULT INSTITUTIONS
MULE CREEK STATE PRISON
4001 Highway 104
P.O. Box 409099
Ione, CA, 95640

Date: February 1, 2021

State of California Water Resources Control Board
Central Valley Regional Water Quality Control Board
Sacramento Office
11020 Sun Center Drive, #200
Rancho Cordova, CA 95670-6114

Attention: Ms. Elizabeth Lee
Senior Water Resource Control Engineer

MULE CREEK STATE PRISON (MCSP) NON-STORMWATER DISCHARGE REPORT; CALIFORNIA DEPARTMENT OF CORRECTIONS AND REHABILITATION –MULE CREEK STATE PRISON, WDID#:5S03M2000307, AMADOR COUNTY

Dear Ms. Lee,

This non-stormwater discharge report is being submitted to comply with the reporting requirement Provision I.D of the latest Water Code Section 13383 Order (13383 Order) dated December 22, 2020. This letter has also been submitted to the State Water Resource Control Board's Stormwater Multiple Application and Report Tracking System (SMARTS) website.

The non-stormwater volumes recorded at the flow meter at MCSP 5 and MCSP 6 are in compliance with Discharge Prohibitions of the MS4. Flowmeter readings reported weekly to the CVRWQCB are taken from flowmeters located at MCSP 5 and MCSP 6. MCSP 5 and MCSP 6 are within the MCSP storm water management system, and are not representative of what MCSP discharges to Mule Creek in either water quality or volume.

The flowmeter locations at MCSP 5 and MCSP 6 are a substantial distance up-flow from the points of discharge to Mule Creek (points of compliance) and are not representative of discharge to Mule Creek. MCSP 5 to point of compliance MCSP 2 is 630', and MCSP 6 to point of compliance MCSP 3 is 1500'. MCSP is in the process of relocating the flowmeters from MCSP 5 and MCSP 6 to points of compliance MCSP 2 and MCSP 3, in order to accurately record actual discharges to Mule Creek through MCSP points of compliance.

MCSP has determined that non-stormwater flow entering the storm water collection system and recorded at MCSP 5 and MCSP 6 results from defects in the potable water, landscape irrigation system at the facility. Operation of the landscape irrigation system, correlates to flow within the storm water collection system. MCSP is taking steps to repair the landscape irrigation system in address of this non-stormwater flow.

Specifically, we are tracking facility irrigation schedules more closely and have already adjusted in an effort to reduce flow into the storm water collection system. Additionally, we are developing plans for repair of the system. We anticipate that the irrigation system rehabilitation effort will occur this summer but the schedule has not been finalized as of the date of this report.

The non-stormwater (landscape irrigation runoff) recorded at MCSP 5 and MCSP 6 does not discharge to Mule Creek and is retained on MCSP property within the constructed earthen channels that run from MCSP 5 to MCSP 2, and from MCSP 6 to MCSP 3. MCSP photo-documents conditions at these locations daily. The photographs are included in Weekly Status Reports that are submitted to Kenny Croyle at the CVRWQCB. MCSP has not observed non-stormwater discharges to Mule Creek through points of compliance MCSP 2 or MCSP3.

Please let me know if you have any questions or need additional information.

CHRISTOFER HUDGENS
Correctional Plant Manager II
Mule Creek State Prison

EXHIBIT 24

CALIFORNIA
Water Boards

GAVIN NEWSOM
GOVERNOR

JARED BLUMENFELD
SECRETARY FOR
ENVIRONMENTAL PROTECTION

Central Valley Regional Water Quality Control Board

29 June 2021

Patrick Covello, Warden
Mule Creek State Prison
P.O. Box 409099
Ione, CA 95640

COMMENTS TO THE NON-STORM WATER DISCHARGE REPORT; CALIFORNIA DEPARTMENT OF CORRECTIONS AND REHABILITATION – MULE CREEK STATE PRISON, WDID#:5S03M2000307, AMADOR COUNTY

On 10 April 2019, the California Department of Corrections and Rehabilitation – Mule Creek State Prison (Permittee) enrolled under the National Pollutant Discharge Elimination System (NPDES) General Permit for Waste Discharge Requirements for Storm Water Discharges from Small Municipal Separate Storm Sewer Systems, Water Quality Order 2013-0001-DWQ, as amended (Small MS4 General Permit). The Small MS4 General Permit includes Discharge Prohibitions which state, in part, the following under Section B.3:

> *Discharges through the MS4 of material other than storm water to waters of the U.S. shall be effectively prohibited, except as allowed under this Provision or as otherwise authorized by a separate NPDES permit.*

The Small MS4 General Permit allows incidental runoff from landscaped areas through the MS4 to waters of the U.S. in accordance with the following conditions:

> *Discharges in excess of an amount deemed to be incidental runoff shall be controlled.... Incidental runoff is defined as unintended amounts (volume) of runoff such as unintended, minimal over-spray from sprinklers that escapes the area of intended use. Water leaving an intended use area is not considered incidental if it is a part of the facility design, if it is due to excessive application, if it is due to intentional overflow or application, or if it is due to negligence.*

On 22 December 2020, the Central Valley Regional Water Quality Control Board (Central Valley Water Board) issued the Permittee a Water Code Section 13383 Order to Monitor Discharges to Surface Water (13383 Order). Due to concerns regarding excessive dry weather flows measured at internal flow monitoring locations within the MS4 system and consistent with Section B.3 of the Small MS4 General Permit, the 13383 Order required the submittal of a Non-Storm Water Discharge Report (Report). The Report was required to either demonstrate compliance with the Small MS4 General Permit Discharge Prohibitions or, if the non-storm water discharge is not in compliance with the Discharge Prohibitions, include a proposed plan—subject to Central Valley Water Board staff approval—to eliminate the non-storm water discharge.

The Permittee submitted the Report on 1 February 2021 in compliance with the 13383 Order. The Report concludes as follows: (1) non-storm water flow entering the MS4 are from defects in the irrigation system; and (2) the non-storm water volumes recorded at MCSP5 and MCSP6 comply with the Discharge Prohibitions of the Small MS4 General Permit because the non-storm water is not being discharged to Mule Creek.

Staff has reviewed the Report and has determined the irrigation runoff does not meet the Small MS4 General Permit's definition of incidental runoff because the runoff is due to defects in the irrigation system. Although the Report claims the excessive irrigation runoff is not being discharged to Mule Creek, based on staff's review of the Permittee's weekly self-monitoring reports, it appears the excessive irrigation runoff may occasionally discharge to Mule Creek (e.g., the weeks of 11 November 2020 and 8 January 2021) and irrigation is occurring during precipitation events. Regardless, the large volume of excessive (e.g., 50,000 gallons) irrigation runoff being discharged into the MS4 system poses a threat to water quality in Mule Creek because controls are not sufficient to ensure the runoff is contained once discharged past the MS4 slide gates at MCSP5 and MCSP6. Finally, the Permittee identified MCSP5 and MCSP6 as the outfalls for purposes of the 13383 Order and Small MS4 General Permit due to the absence of monitoring infrastructure at the true outfall locations, MCSP2 and MCSP3. Unless and until the Permittee installs monitoring infrastructure at MCSP2 and MCSP3, discharges monitored at MCSP5 and MCSP6—which then flow through the constructed, vegetated swale to Mule Creek—will be assumed to represent the MS4's discharges to Mule Creek for compliance purposes.

Therefore, per the Small MS4 General Permit and the 13383 Order, the Permittee must submit a proposed plan to eliminate the non-storm water runoff, which includes the following:

a) Details of best management practices (BMPs) to be implemented to minimize the non-storm water discharge,

b) Details of interim actions to mitigate impact of non-storm water discharges to Mule Creek (e.g., full description, explanation, and schedule of the adjustment to irrigation schedules while the irrigation system is in the process of being repaired and replaced),

c) Implementation schedule of the BMPs (both interim and permanent mitigation actions), and

d) Date for expected compliance with the Discharge Prohibitions in the Small MS4 General Permit.

As part of the Settlement Agreement and Stipulation for Entry of Administrative Civil Liability Order, Order No. R5-2021-0001, the Permittee has agreed to an Enhanced Compliance Action (ECA) called the Mule Creek State Prison – Landscape Irrigation System Replacement Project (Project), which represents a permanent mitigation action intended to reduce non-storm water flows resulting from irrigation into Mule Creek by installation of new piping for the irrigation system. This ECA Project and its implementation schedule partially fulfills Items (a) and (c), above, however, details of interim mitigation actions in Item (b) above are still required until the ECA Project is completed. Please provide the details of interim mitigation actions per Item (b) above and a complete implementation schedule that includes both the interim mitigation and ECA Project actions.

The Permittee has also proposed to install monitoring discharge structures at the true outfall locations MCSP2 and MCSP3 to substantiate that excessive irrigation flows are not being discharged to Mule Creek. Please provide the tasks and anticipated design and construction schedule for installing monitoring discharge structures at MCSP2 and MCSP3. **The Permittee must submit a complete plan that includes the information requested above by 30 July 2021 via the Stormwater Multiple Application Reporting & Tracking System (SMARTS) database**.

If you have any questions, please contact me at Elizabeth.Lee@waterboards.ca.gov.

Elizabeth M. Lee Digitally signed by Elizabeth M. Lee
Date: 2021.06.29 09:22:20 -07'00'

Elizabeth M. Lee, P.E.
Senior Water Resource Control Engineer
Municipal Storm Water Program

cc: next page

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EXHIBIT 25

Timeline of Changes 10

Table 10-1

MCSP Timeline of Changes			
Project Name[1]	**Date Completed**	**System(s) Impacted**	**Comments**
Meat Packing Grease Trap Installation – C2-1	Circa-1990	Sanitary Sewer	Installation of two grease traps for the meat packing facility. Relocated 6-inch sewer line around the traps.
Building B5 Medical Health Building – Facility B	7/01/02	Sanitary Sewer	Impact to the stormwater collection system was tying a 4-inch line into an existing 8-inch line.
Enhanced Out Patient Treatment Building – Facility B-7	12/01/08	Stormwater, Sanitary Sewer	Relocation of approximately 100-feet of stormwater and sanitary sewer lines.
Correctional Treatment Center (CTC) Freezer Installation – B-3	Circa-2009	Stormwater	Installation of freezers at the CTC building. Condensate lines plumbed to stormwater collection system.
Correctional Treatment Center (CTC) Flooring Replacement – B-3	Circa-2014	Stormwater	Install of several additional stormwater inlets boxes. Install of perimeter de-watering system to remove groundwater from under CTC slab. Use of French drain and sump pump to remove groundwater.
Refrigeration Unit Installation – C1-2	Circa-2015	Sanitary Sewer	Relocation of 8-inch sanitary sewer line around refrigeration units adjacent to building.
Health Care Facility Improvement Project – New Pharmacy Building B9 (between B-4A and A-1)	Circa-2015	Stormwater	Relocation of an 18-inch stormwater line and the addition of drain inlet boxes.
Correctional Treatment Center (CTC) Flooring Replacement – B-3	Circa-2016	Stormwater	Installation of four sumps in CTC lightwell courtyard. Sumps plumbed to Center Corridor stormwater collection system.
Health Care Facility Improvement Project – New Clothing Exchange Facility C4 (near Housing Units Y-14 and Y-15)	Circa-2016	Stormwater	Relocation of a 12-inch stormwater line and drain inlet boxes.
Health Care Facility Improvement Project – New AD-Seg Primary Care and Mental Health Clinic C3 (near Housing Units Y-14 and Y-15)	Circa-2016	Stormwater, Sanitary Sewer	Relocation of a 12-inch and 6-inch stormwater line and the addition of drain inlet boxes. Also, 10-inch and 6-inch sanitary sewer lines relocated.

Table 10-1

MCSP Timeline of Changes			
Project Name[1]	**Date Completed**	**System(s) Impacted**	**Comments**
Health Care Facility Improvement Project – New Clothing Exchange Facility B8	Circa-2016	Stormwater	Relocation of a 12-inch stormwater line and drain inlet boxes.
Health Care Facility Improvement Project – New Clothing Exchange Facility A4 (near Housing Units Y-1 and Y-2)	Circa-2016	Stormwater	Relocation of a 12-inch stormwater line and drain inlet boxes.
Site-wide Hydronic Loop Replacement	April 31, 2018	Hydronic	MCSP abandoned the hydronic loop system which provided hot water to the whole facility for heating. Replaced with point-of-use heating systems.
Stormwater Transfer Pumps GT-2 and GT-4	August 22, 2018	Stormwater	Installed water meter on stormwater transfer pumps located at GT-2 and GT-4
Stormwater Transfer Pumps GT-2, GT-3, and GT-9	September 18, 2018	Stormwater	Hard wired flow meters for stormwater transfer pumps located at GT-2, GT-3, and GT-9
Stormwater Culvert Flow Monitoring Main Outfall	March 27-28, 2019	Stormwater	Run power and install flow meter in discharge on main irrigation line
Main Irrigation Flow Meter	April 5, 2019	Irrigation	Install new flow meter on main irrigation line
Stormwater Culvert Flow Monitoring Secondary Outfall	September 27, 2019	Stormwater	Run power and install flow meters in discharge culverts at Secondary Outfall
1. Refer to MCSP "Site and Facility Plan" for building locations (Appendix 3).			

EXHIBIT 26

Recommended Actions 23

Table of Contents

Table 23-1. **Recommended Action by Segment**
Mule Creek State Prison, Ione, California

Segment	Pipe Diameter (in)	System	Figure	Corrective Action	Approximate Location	Affected Length (ft)	Finding Sequence Reference(s)
A19-A16	6	Storm Drain	7E	Repair	23'-35' DS of A19	12	12-20, 12-21
A223-A225	8	Storm Drain	7D	Repair	Full Segment	72	6-17, 6-18
A224-A225	8	Storm Drain	7D	Repair	Full Segment	16	6-19, 6-20
A227-A229, A229-A231	8	Storm Drain	7D	Repair	0'-9' DS and 0-12' US of A229	21	6-25, 6-26, 6-27, 6-28
A237A-A235	12	Storm Drain	6C	Repair	20'-42' DS of A237A	22	6-11, 6-12, 6-13
A238-A237	12	Storm Drain	6C	Repair	21'-41' DS of A238	20	6-8, 6-9
A240-JY5	12	Storm Drain	6C	Repair	8'-28' DS of A240	20	6-5, 6-6, 6-7
AB249	6	Storm Drain	5C	Repair	0'-12' US of SDMH501	12	16-4, 2018-4
AEP222-A222	6	Storm Drain	7D	Repair	Full Segment	40	16-1, 6-16
C172-C173	6	Storm Drain	6F	Repair	Full Segment	33	7-20, 7-21
C181A-WYE181	12	Storm Drain	5F	Repair	0'-17' from main	17	7-17
C185-C184, C184-C183, C183-C181	6	Storm Drain	5F, 5G	Repair	Full Segment	80	7-11, 7-12, 7-13, 7-14, 7-15
C189-C193	8	Storm Drain	5G	Repair	Full Segment	78	7-7, 7-8, 7-9, 7-10
C207-C54	8	Storm Drain	6F	Repair	Full Segment	140	5-33, 5-34, 5-35, 5-36, 5-37, 5-38, 5-39
CBP149D-CBP149	10	Storm Drain	2E	Repair	56'-72' US of CBP149	16	18-43, 18-44
GT2OUT-AEPGT2	12	Storm Drain	8D	Repair	Full Segment	331	18-6, 18-7, 18-8, 18-9, 18-10, 18-11, 18-12, 18-13, 18-14, 18-15, 18-16, 18-17, 18-18, 18-19, 18-20, 18-21, 18-22, 18-23, 18-24, 18-25
JY4-A8	12	Storm Drain	7C, 7D	Repair	27'-35' from JY4	8	6-1, 6-2
A1-2A	4	Sanitary Sewer	5D	Repair	13-28' US of SSMH403	15	10-17, 10-18
A2-1B	4	Sanitary Sewer	5D	Repair	0'-30' from main	30	11-11, 2018-53, 2018-54
A2-2A	4	Sanitary Sewer	5D	Repair	0'-25' from main	25	10-34, 10-35, 2018-55
B2-2A	4	Sanitary Sewer	4E	Repair	15'-25' from main	10	2018-64, 9-22, 14-10, 2018-63, 14-12
B4	4	Sanitary Sewer	5E	Repair	0'-123' from main	123	10-8, 10-9, 10-10, 10-11, 10-12, 10-13, 10-14, 10-15, 10-16, 2018-41, 2018-57, 2018-58, 2018-59
B9	4	Sanitary Sewer	5E	Repair	0'-10' from main	10	10-24, 10-25, 2018-60, 2018-61, 2018-62
C2-1B	4	Sanitary Sewer	4F	Repair	0-20' from main	20	8-13, 9-11, 9-12, 9-13, 9-14
G2	6	Sanitary Sewer	3G, 3H	Repair	Full Segment	115	16-8, 16-9, 16-10, 16-11
GT4	4	Sanitary Sewer	5C	Repair	46'-57' DS of GT4	11	3-13, 17-4
SSMH209-SSMH207	6	Sanitary Sewer	3F, 4F	Repair	Full Segment	223	2018-46, 2018-47, 2018-48, 2018-49, 2018-50, 2018-51, 2018-52, 14-8
SSMH23-SSMH18	6	Sanitary Sewer	3E	Repair	128'-135' DS of SSMH23	6	2-5, 2-6
SSMH401-SSMH13	6	Sanitary Sewer	5C	Repair	Full Segment	142	2018-33, 2018-34, 2018-35
SSMH402-SSMH401	6	Sanitary Sewer	5C, 5D	Repair	Full Segment	251	2018-37
SSMH403-SSMH402	6	Sanitary Sewer	5D	Repair	Full Segment	233	2018-38
Y1A,SSMH22-SSMH21	12	Sanitary Sewer	7E	Repair	0'-15' US and 0'-5' DS of SSMH22	20	2-14, 2-15, 1-13
Y9A	6	Sanitary Sewer	3E	Repair	58'-68' US of SSMH18	10	1-5, 13-21, 13-22, 19-1, 19-2, 19-3
OUT1 (Main Outfall West Pipe)	24	Storm Drain	7C	Monitor	0'-61' DS of Main Outfall	61	5-11

Table 23-1. **Recommended Action by Segment**
Mule Creek State Prison, Ione, California

Segment	Pipe Diameter (in)	System	Figure	Corrective Action	Approximate Location	Affected Length (ft)	Finding Sequence Reference(s)
OUT2 (Main Outfall East Pipe)	24	Storm Drain	7C	Monitor	0'-61' DS of Main Outfall	61	5-10
SDMH501-A1	24	Storm Drain	5C	Monitor	Full Segment	185	2018-1, 2018-3
SDMH502-SDMH501	24	Storm Drain	5C	Monitor	Full Segment	47	2018-5, 2018-6
SDMH503-SDMH502	24	Storm Drain	5C, 5D	Monitor	Full Segment	169	2018-7, 2018-8
SDMH504-SDMH503	21	Storm Drain	5D	Monitor	Full Segment	158	2018-9, 2018-10
SDMH505-SDMH504	21	Storm Drain	5D	Monitor	Full Segment	170	2018-13, 2018-14, 2018-15
SDMH506-SDMH505	18	Storm Drain	5D, 5E	Monitor	Full Segment	184	2018-16, 2018-17, 2018-18, 2018-19, 2018-20, 2018-21
B1-2C	4	Grease Waste	5D	Monitor	Full Segment	40	11-24
B1-2D	4	Sanitary Sewer	5D, 4D	Monitor	Full Segment	169	11-25, 11-26, 10-39

Table 23-2. **Recommended Action by Point**
Mule Creek State Prison, Ione, California

Segment	Pipe Diameter (in)	System	Figure	Corrective Action	Approximate Location	Finding Sequence Reference(s)
C2-1A	6	Grease Waste	4F	Repair	79.5' DS of C/O	9-9
					99.3' DS of C/O	9-10
C2-3A	6	Grease Waste	3F, 4F	Repair	95' DS of C/O	9-15
A1-2D	4	Sanitary Sewer	5E	Repair	64.6' DS of COA12DB	17-19
A3C	4	Sanitary Sewer	7D	Repair	11.4' US of main	13-12
B2-1B	4	Sanitary Sewer	4E, 5E	Repair	62.1' US of main	9-21
C/O5-SSMH23	4	Sanitary Sewer	2E	Repair	1' US of SSMH23	3-20
C1-2A	4	Sanitary Sewer	5E	Repair	8.2' US of main	2018-65
C2-3C	4	Sanitary Sewer	3F	Repair	115' DS of C/O	9-2
C5-Y15A	4	Sanitary Sewer	6F	Repair	4' DS of CO C5	17-8
G2-1	2	Sanitary Sewer	3G, 3H	Repair	78.5' US of COG2-1	16-14
					13' DS of COG2-1	16-15
GT1	4	Sanitary Sewer	7E, 7F	Repair	52' DS of GT1	3-17
			6F		1' US of SSMH103	8-12
GT4	4	Sanitary Sewer	5C	Repair	34' DS of GT4	3-12
GT6	4	Sanitary Sewer	3E	Repair	82.7' US of main	13-24
SSMH102-SSMH101	10	Sanitary Sewer	6G	Repair	188' DS of SSMH102	2-2
SSMH103-SSMH102	10	Sanitary Sewer	6F	Repair	106' DS of SSMH103	2-1
SSMH106B-SSMH105	8	Sanitary Sewer	5E	Repair	54.8' DS of SSMH106B	2018-42
SSMH107-SSMH106	8	Sanitary Sewer	4E, 4F	Repair	26.2' DS of SSMH107	2018-44
			5E		167.2' DS of SSMH107	2018-43
SSMH109-SSMH108	8	Sanitary Sewer	5E	Repair	196' DS of SSMH109	10-19, 2018-40
					210' DS of SSMH109	2018-39
SSMH18-SSMH17	6	Sanitary Sewer	3D	Repair	176' DS of SSMH18	1-11
SSMH207-SSMH205	8	Sanitary Sewer	3F	Repair	166' DS of SSMH207	3-1
SSMH212A-SSMH211	8	Sanitary Sewer	2F	Repair	85.5' US of SSMH211	15-6, 15-7, 18-26, 18-27
SSMH214-SSMH20	6	Sanitary Sewer	3E	Plug segment at SSMH20 if no active connections	At SSMH20	15-9
SSMH21-SSMH6	12	Sanitary Sewer	7D	Repair	137' DS of SSMH21	1-14
SSMH24-SSMH26	6	Sanitary Sewer	2E	Repair	19.5' DS of SSMH24	5-2
					138' DS of SSMH24	5-3
Y12B	4	Sanitary Sewer	5G	Repair	36.7' US of main	12-4
Y13B	4	Sanitary Sewer	5G	Repair	33.5' US of main	12-7
Y4A	6	Sanitary Sewer	7C	Repair	20' US of SSMH10	2-12
Y5A	6	Sanitary Sewer	6C	Repair	12' US of SSMH12	2-10
Y5B	4	Sanitary Sewer	6C	Repair	11.5' US of main	16-19
Y5C	6	Sanitary Sewer	6C	Repair	17' US of SSMH11	2-9, 2-8
Y6B	4	Sanitary Sewer	4C, 4D	Repair	11.9' US of main	13-17
A12	12	Storm Drain	7D	Repair	At A12	5-28
A230-A228	12	Storm Drain	6D, 7D	Repair	42.5' DS of A230	6-15
A42-A43	4	Storm Drain	7E	Repair	1.2' DS of A42	17-13, 17-14
A9	12	Storm Drain	7C	Repair	At A9	12-22
AB119	6	Storm Drain	5D	Repair	6.2' US of SDMH504	10-31
AB121	6	Storm Drain	5D	Repair	74.4' US of SDMH505	10-6, 10-7
AEP222	4	Storm Drain	7D	Install Catchbasin	At AEP222	N/A
AEP226	8	Storm Drain	7D	Install Catchbasin	At AEP226	N/A
B21-B22	12	Storm Drain	4C	Repair	59.8' US of B22	12-23
B23-P157	12	Storm Drain	4C	Repair	36.5' DS of B23	18-4
B251	8	Storm Drain	4C, 4D	Repair	At B251	3-8
B30	12	Storm Drain	3D, 3E	Repair	At B30	3-4
B216-B32	12	Storm Drain	3E	Repair	141' US of B32	3-3
B94-SDMH95	8	Storm Drain	5E	Repair	18.3' US of SDMH95	14-21
					16.8' US of SDMH95	14-20
BC112	6	Storm Drain	4E, 4F	Repair	At B/C112	9-8
C170A	8	Storm Drain	4F	Repair	At C170A	8-4
C170B	8	Storm Drain	5F, 6E, 6F	Repair	At C170B	8-9, 8-10, 8-11
C177-C64	12	Storm Drain		Repair	144.4' US of C64	5-31

Table 23-2. **Recommended Action by Point**
Mule Creek State Prison, Ione, California

Segment	Pipe Diameter (in)	System	Figure	Corrective Action	Approximate Location	Finding Sequence Reference(s)
C187-C186	6	Storm Drain	5G	Repair	7.7' DS of C187	7-4
					12.6' DS of C187	7-5
C199-C245	12	Storm Drain	5G	Repair	96.5' US of C245	15-12
C206	8	Storm Drain	4F	Repair	At C206	8-5
C55-C58	12	Storm Drain	6F	Repair	116.7' US of C58	5-41
CB11-CB12	10	Storm Drain	2E	Repair	32.1' US of CB12	5-23
					52.6' US of CB12	5-24
CBP149D-CBP149	10	Storm Drain	2E	Repair	71.7' DS of CBP149D	18-42
CBP149E-CBP149D	12	Storm Drain	2E	Repair	1' US of CBP149D	19-15
CBP149F-CBP149E	12	Storm Drain	2F	Repair	109.9' DS of CBP149F	19-19
					7.6' DS of CBP149F	19-18
CO207-C207	4	Storm Drain	6F	Repair	52.6' DS of C/O C207	16-7
INAC193-C193	4	Storm Drain	5G	Repair	0.6' US of C193	7-1
INB14-C171	6	Storm Drain	6F	Repair	10.4' DS of INB14	7-18
IN-B221	4	Storm Drain	3E	Repair	15.4' DS of INB221	16-2
					16.8' DS of INB221	16-3
IN-JGT9	6	Storm Drain	6G	Repair	12.6' DS of JGT9	14-22
IN-SDMHC244	4	Storm Drain	5G	Repair	6.9' US of SDMHC244	19-6
JGT9	8	Storm Drain	6G	Install Catchbasin	At JGT9	N/A
JY4	12	Storm Drain	7E, 7D	Install Catchbasin	At JY4	N/A
P228-P229	10	Storm Drain	7F	Repair	214.8' DS of P228	16-16
SDMH508-SDMH507	15	Storm Drain	5E	Repair	144' DS of SDMH508	2018-26
SDMH513-SDMH512	8	Storm Drain	3F	Repair	66' DS of SDMH513	2018-31
C59-OUT	12	Storm Drain	6F	Monitor	13' DS of C59	5-30
B93-B91	8	Storm Drain	5E	Monitor	9.7' DS of B91	11-4, 14-17
D110-D109	2	Storm Drain	7E	Monitor	16.1' DS of D110	14-23
D1A	6	Sanitary Sewer	6E	Monitor	93.6' DS of COD1A	19-10
A1-2D	4	Sanitary Sewer	5D, 5E, 6D, 6E	Monitor	65.9' US of COA12DB	17-20

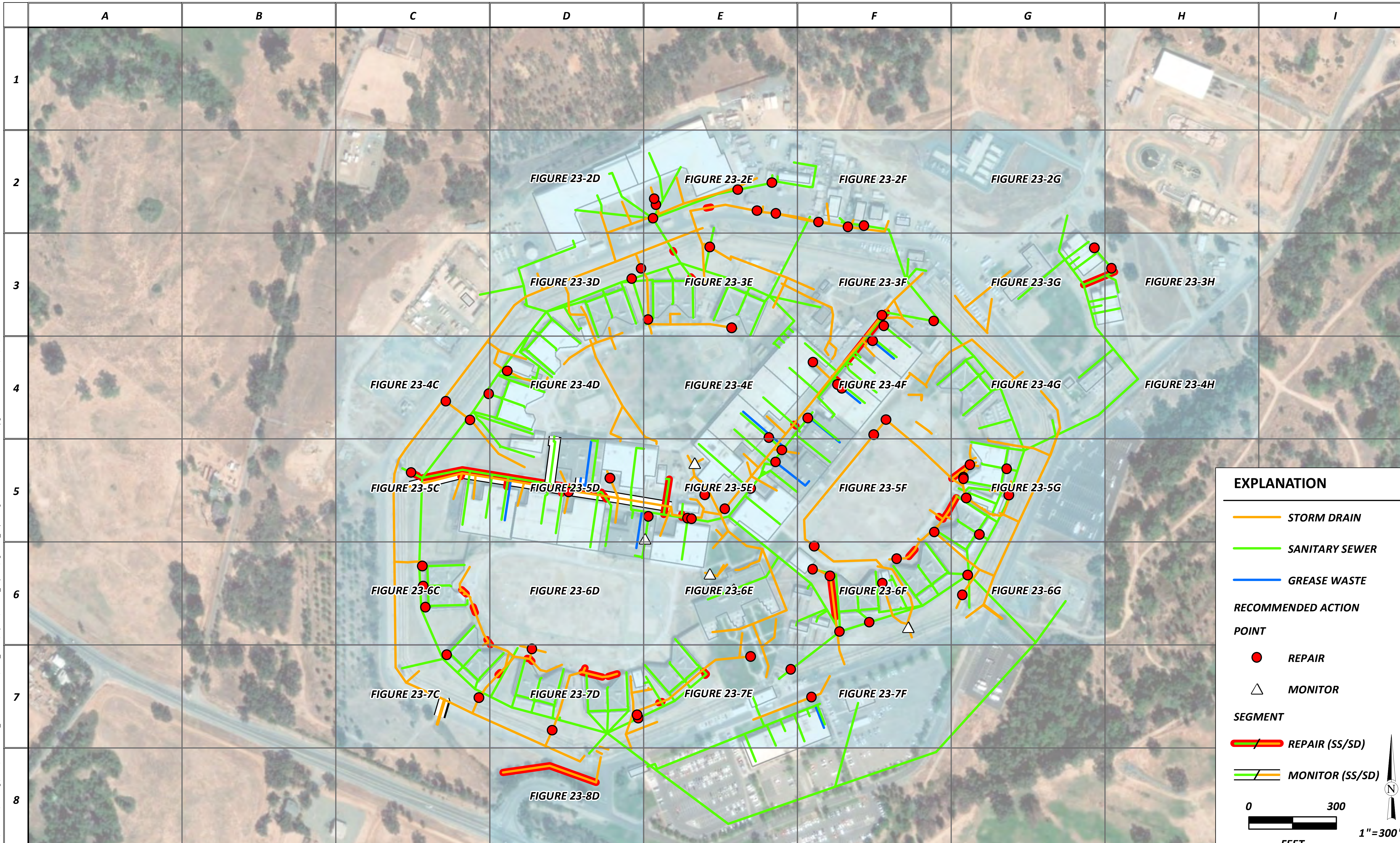

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IMAGE SOURCE: ESRI, DIGITALGLOBE, GEOEYE, EARTHSTAR GEOGRAPHICS, CNES/AIRBUS DS, USDA, USGS, AEROGRID, IGN, AND THE GIS USER COMMUNITY

SHN

Mule Creek State Prison
Stormwater Investigation
Ione, California

Recommended Actions
Figure Location Map
SHN 516025.105

October 2019 | Figure01_RepairsFigureIndex | Figure 23-1

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IMAGE SOURCE: MICROSOFT CORPORATION, DIGITALGLOBE, CNES DISTRIBUTION AIRBUS DS

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SHN

Mule Creek State Prison
Stormwater Investigation
Ione, California

Recommended Actions Detail

SHN 516025.105

October 2019 | Figure2D_RepairsDetail | Figure 23-2D

SEGMENT KEY

1. C/O1-SSMH23, 4"
2. B33-P149, 12"
3. CBP149-1-WYEP149-1, 6"
4. CBP149E-CBP149D, 12"
5. CBP149B-CBP149C, 6"
6. COSSMH24-SSMH24, 4"
7. J1CO-J1WYE, 4"

EXPLANATION

STRUCTURES

- SD CATCHBASIN
- SD CISTERN
- SD JUNCTION
- SD MANHOLE
- TRAP
- SS CLEANOUT
- SS JUNCTION
- SS MANHOLE
- STORM DRAIN (SD)
- SANITARY SEWER (SS)

RECOMMENDED ACTION

POINT

- REPAIR
- MONITOR

SEGMENT

- REPAIR (SS/SD)
- MONITOR (SS/SD)

0 40

FEET

N

1"=40'±

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SHN

Mule Creek State Prison
Stormwater Investigation
Ione, California

Recommended Actions Detail

SHN 516025.105

October 2019 | Figure2E_RepairsDetail | Figure 23-2E

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Mule Creek State Prison
Stormwater Investigation
Ione, California

Recommended Actions Detail

SHN 516025.105

October 2019 | Figure2F_RepairsDetail | Figure 23-2F

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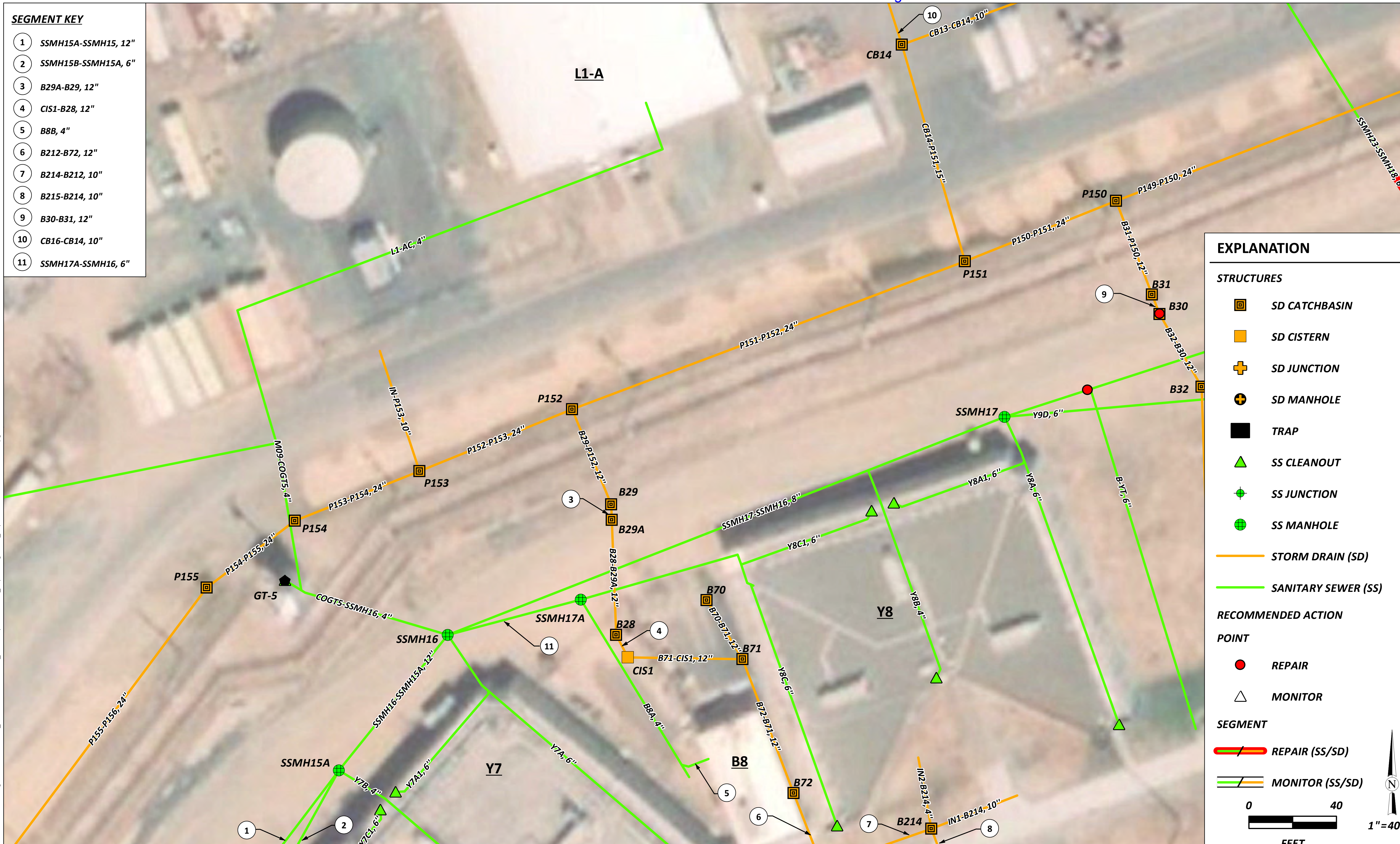
Mule Creek State Prison Stormwater Investigation Ione, California		Recommended Actions Detail SHN 516025.105
November 2019	Figure2G_RepairsDetail	Figure 23-2G



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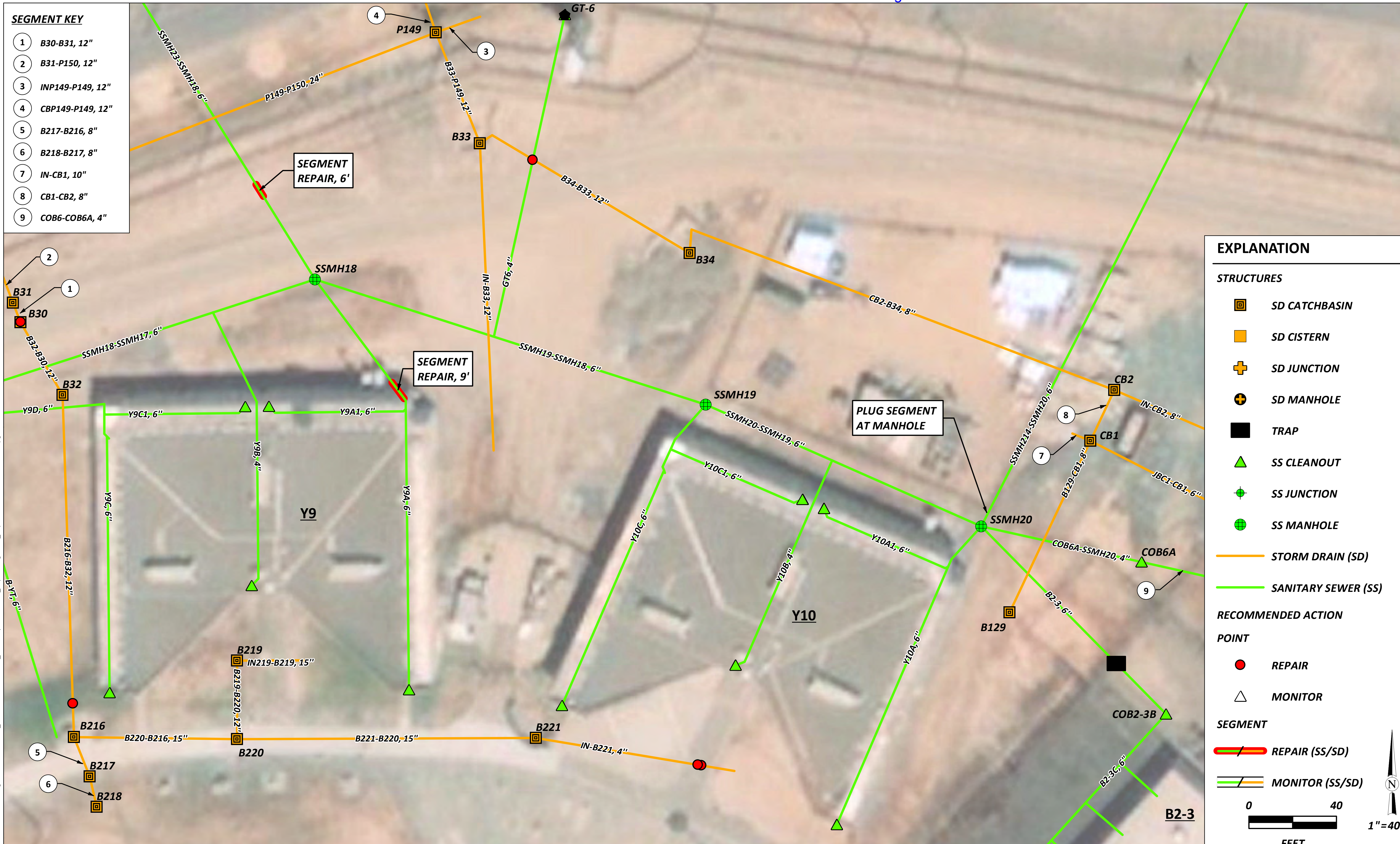
Mule Creek State Prison
Stormwater Investigation
Ione, California

Recommended Actions Detail

SHN 516025.105

October 2019 | Figure3D_RepairsDetail | Figure 23-3D



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SHN

Mule Creek State Prison
Stormwater Investigation
Ione, California

Recommended Actions Detail

SHN 516025.105

October 2019	Figure3E_RepairsDetail	Figure 23-3E

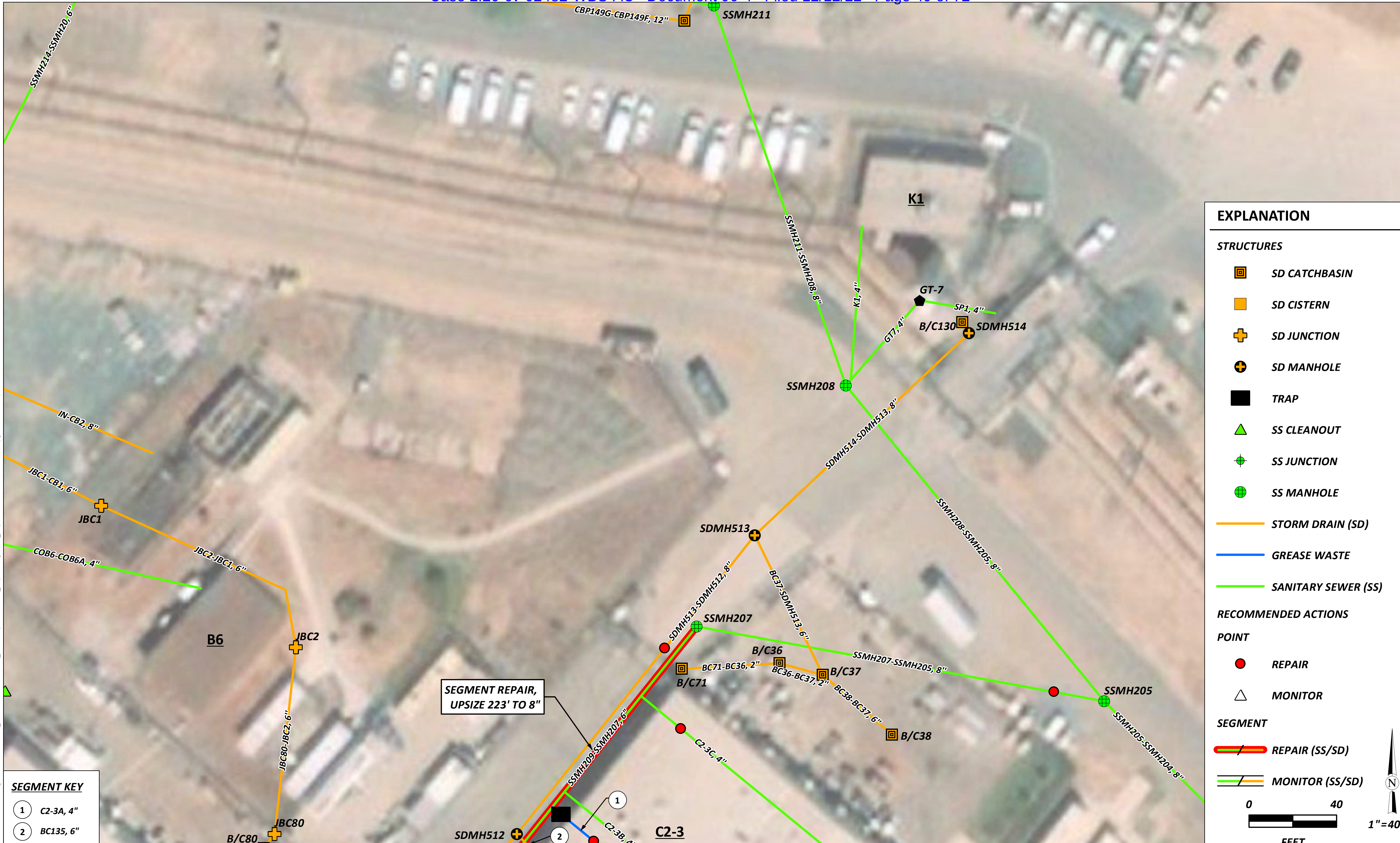

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IMAGE SOURCE: MICROSOFT CORPORATION, DIGITALGLOBE, CNES DISTRIBUTION AIRBUS DS

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Mule Creek State Prison Stormwater Investigation Ione, California		Recommended Actions Detail SHN 516025.105
October 2019	Figure3F_RepairsDetail	Figure 23-3F

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IMAGE SOURCE: MICROSOFT CORPORATION, DIGITALGLOBE, CNES DISTRIBUTION AIRBUS DS

NOTE: NOT ALL STRUCTURES ARE THE PRODUCT OF SURVEY. EXACT PIPE ALIGNMENT AND POSITION RELATIVE TO AERIAL IMAGERY IS NOT GUARANTEED AND IS AN APPROXIMATION. SHN MAKES NO GUARANTEE AS TO THE COMPLETENESS OR EXACT ALIGNMENT OF DEFECTS, SEGMENTS, OR STRUCTURES.

SHN

Mule Creek State Prison
Stormwater Investigation
Ione, California

Recommended Actions Detail

SHN 516025.105

October 2019	Figure3G_RepairsDetail	Figure 23-3G

Path: \\eureka\projects\GIS-Files\Redding\2016\516025.105_MuleCreekCCTV\PROJ_MXD\Report\Scale40_Repairs\Figure3H_RepairsDetail.mxd User Name: pgustavson DATE: 10/30/19, 1:29PM

IMAGE SOURCE: MICROSOFT CORPORATION, DIGITALGLOBE, CNES DISTRIBUTION AIRBUS DS

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SHN

Mule Creek State Prison
Stormwater Investigation
Ione, California

Recommended Actions Detail

SHN 516025.105

October 2019 | Figure3H_RepairsDetail | Figure 23-3H

MCSP0020774

EXPLANATION

STRUCTURES

- SD CATCHBASIN
- SD CISTERN
- SD JUNCTION
- SD MANHOLE
- TRAP
- SS CLEANOUT
- SS JUNCTION
- SS MANHOLE
- STORM DRAIN (SD)
- SANITARY SEWER (SS)

RECOMMENDED ACTION

POINT

- REPAIR
- MONITOR

SEGMENT

- REPAIR (SS/SD)
- MONITOR (SS/SD)

0 40 FEET 1"=40'±

N

SEGMENT KEY

1. B22-B23, 12"
2. COB21A-COB21, 6"
3. B5 C/O2-Y6D C/O3, 4"
4. B26-B27, 12"
5. B251-B24, 8"
6. B252-B251, 8"
7. Y6D C/O3-SSMH14, 4"
8. B23-P157, 12"
9. CB3-B254, 8"
10. B254-B253, 8"
11. B253-B252, 8"

Path: \\eureka\projects\GIS-Files\Redding\2016\516025.105_MuleCreekCCTV\PROJ_MXD\Report\Scale40_Repairs\Figure4C_RepairsDetail.mxd User Name: pgustavson DATE: 10/30/19, 1:29PM

IMAGE SOURCE: MICROSOFT CORPORATION, DIGITALGLOBE, CNES DISTRIBUTION AIRBUS DS

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Mule Creek State Prison
Stormwater Investigation
Ione, California

Recommended Actions Detail

SHN 516025.105

October 2019 | Figure4C_RepairsDetail | Figure 23-4C

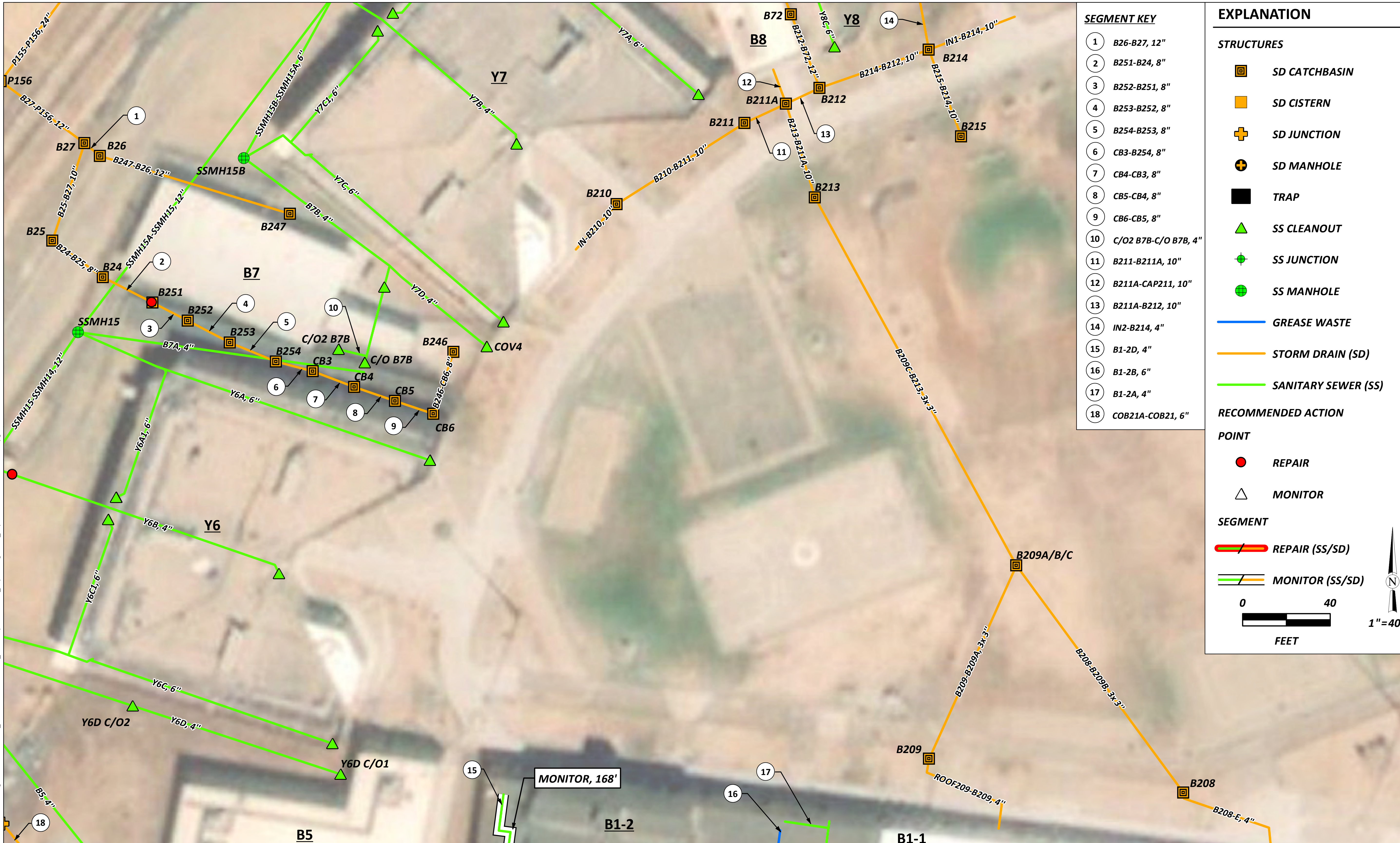

IMAGE SOURCE: MICROSOFT CORPORATION, DIGITALGLOBE, CNES DISTRIBUTION AIRBUS DS

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SHN

Mule Creek State Prison
Stormwater Investigation
Ione, California

Recommended Actions Detail
SHN 516025.105

October 2019 | Figure4D_RepairsDetail | Figure 23-4D

Path: \\eureka\projects\GIS-Files\Redding\2016\516025.105_MuleCreekCCTV\PROJ_MXD\Report\Scale40_Repairs\Figure4D_RepairsDetail.mxd User Name: pgustavson DATE: 10/30/19, 1:29PM

MCSP0020776

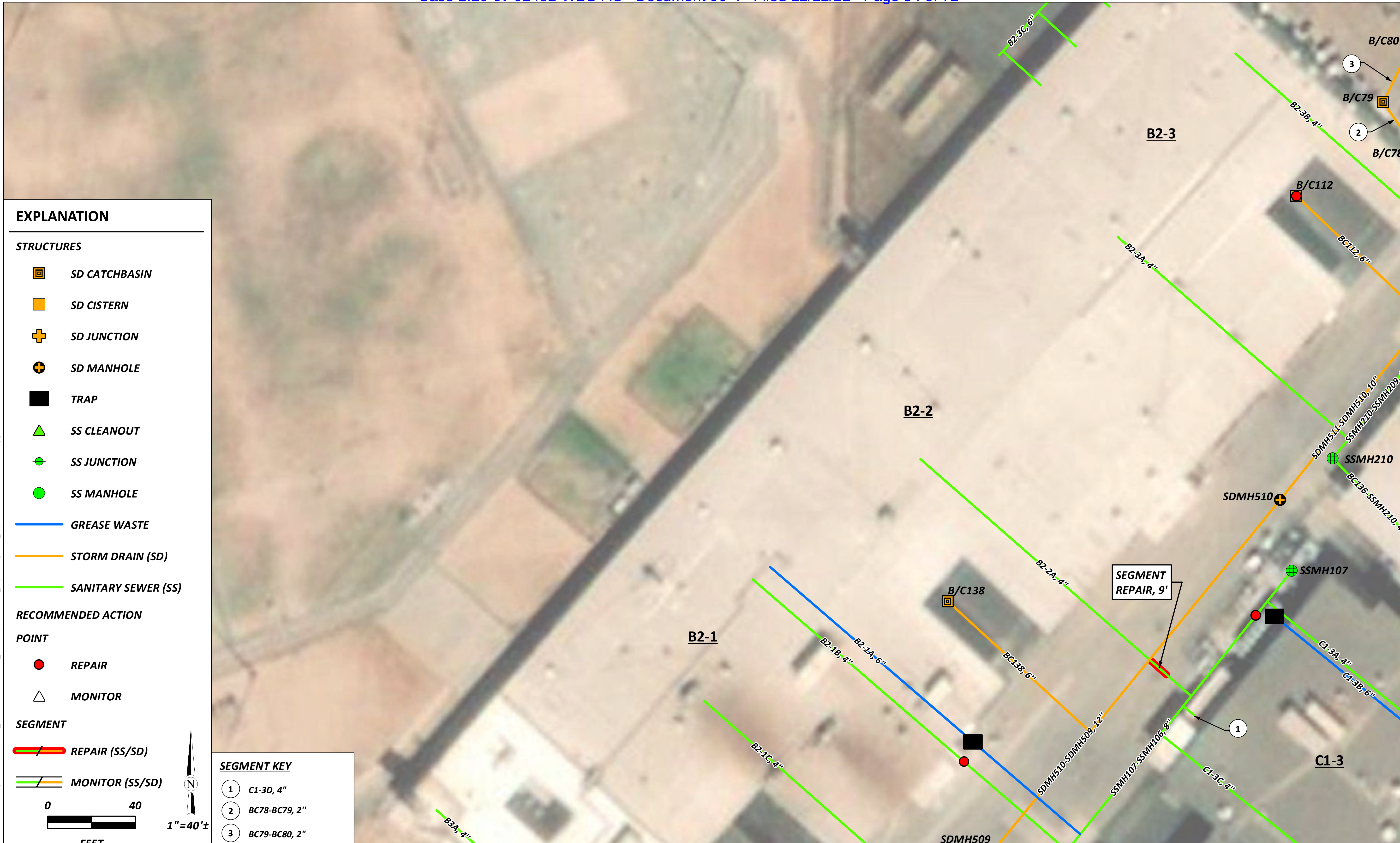

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IMAGE SOURCE: MICROSOFT CORPORATION, DIGITALGLOBE, CNES DISTRIBUTION AIRBUS DS

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Mule Creek State Prison Stormwater Investigation Ione, California		Recommended Actions Detail SHN 516025.105
October 2019	Figure4E_RepairsDetail	Figure 23-4E

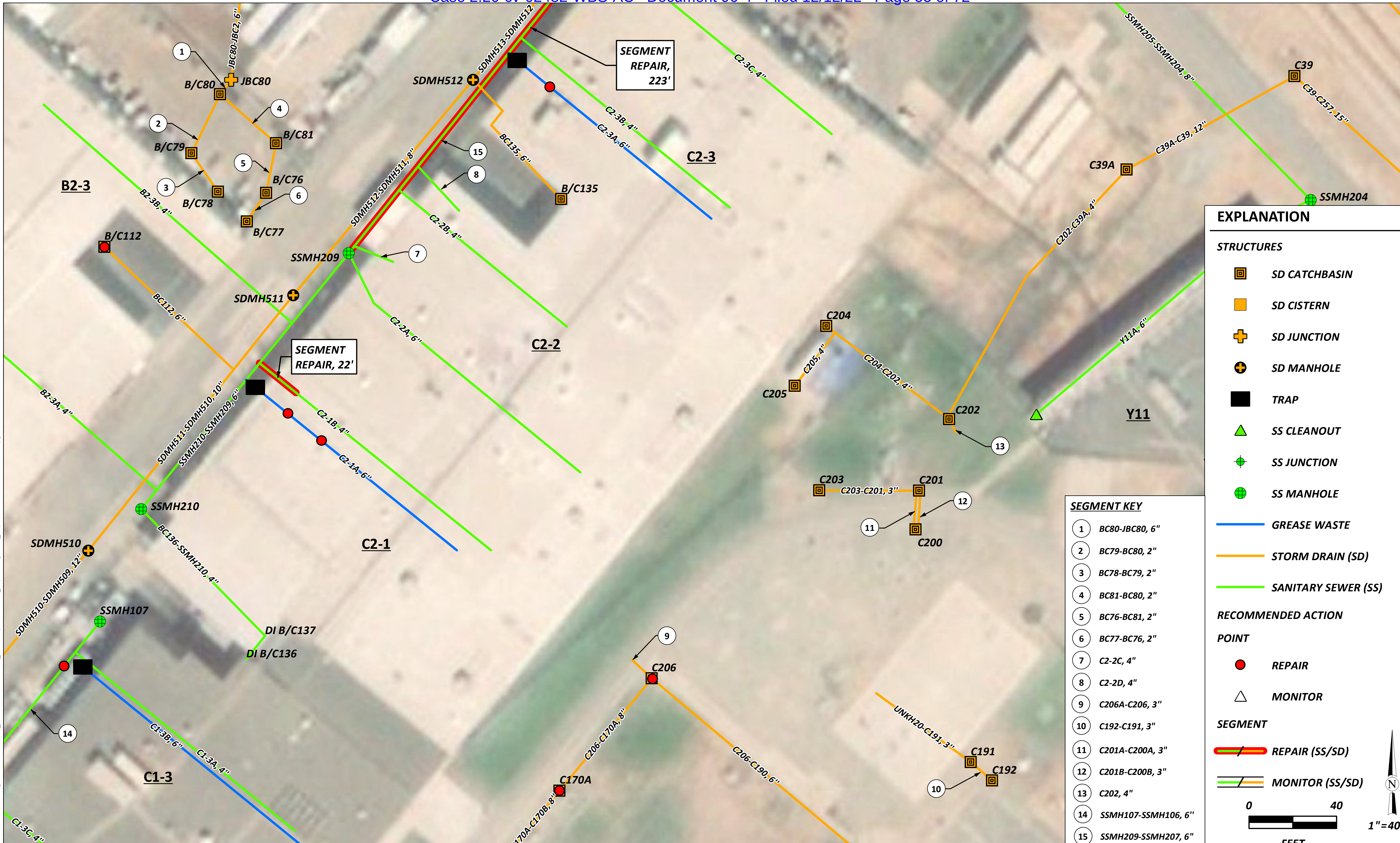

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IMAGE SOURCE: MICROSOFT CORPORATION, DIGITALGLOBE, CNES DISTRIBUTION AIRBUS DS

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SHN

Mule Creek State Prison
Stormwater Investigation
Ione, California

Recommended Actions Detail

SHN 516025.105

October 2019 | Figure4F_RepairsDetail | Figure 23-4F

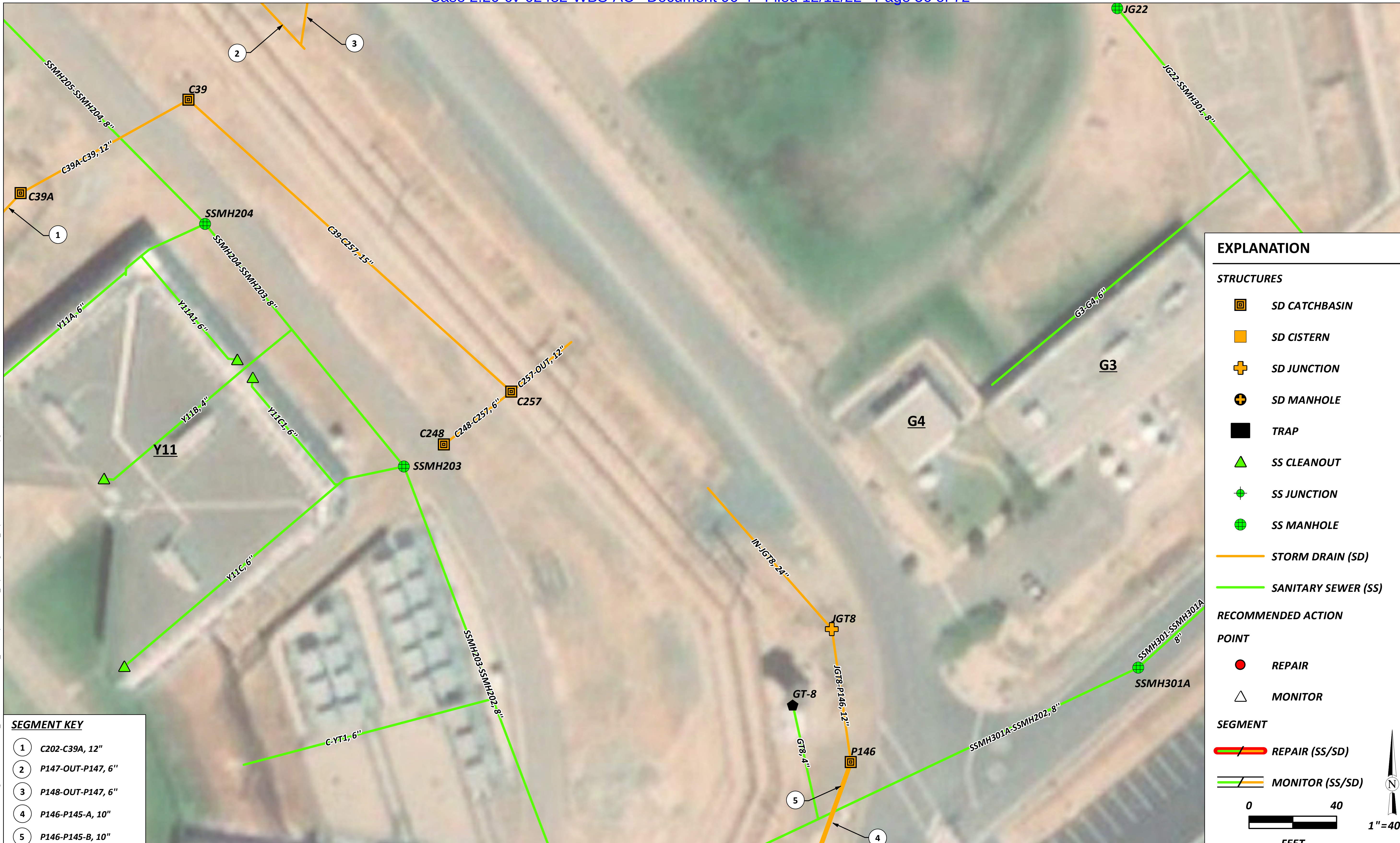

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IMAGE SOURCE: MICROSOFT CORPORATION, DIGITALGLOBE, CNES DISTRIBUTION AIRBUS DS

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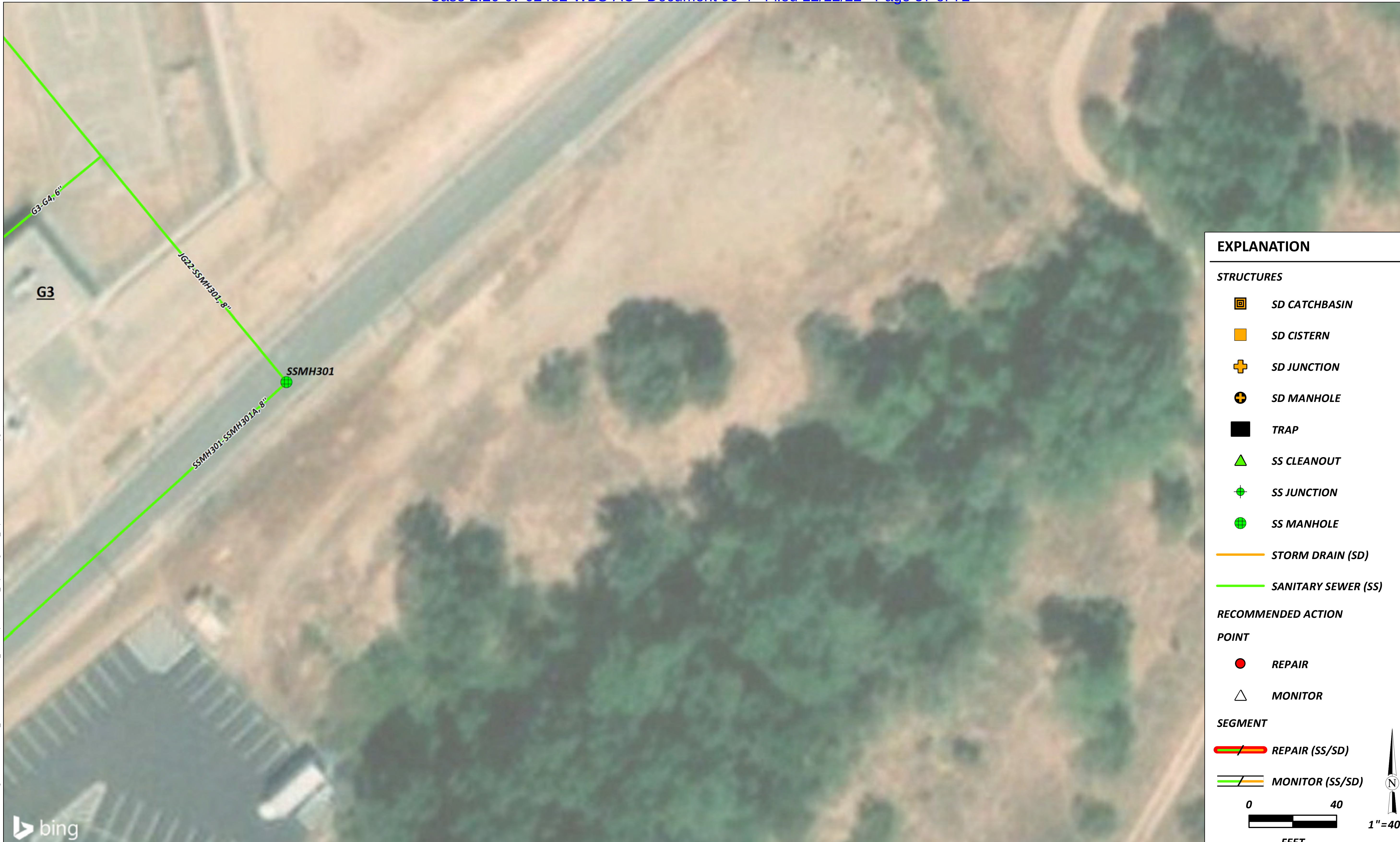
Mule Creek State Prison Stormwater Investigation Ione, California		Recommended Actions Detail SHN 516025.105
October 2019	Figure4G_RepairsDetail	Figure 23-4G

MCSP0020779



Path: \\eureka\projects\GIS-Files\Redding\2016\516025.105_MuleCreekCCTV\PROJ_MXD\Report\Scale40_Repairs\Figure4H_RepairsDetail.mxd User Name: pgustavson DATE: 10/30/19, 1:29PM

IMAGE SOURCE: MICROSOFT CORPORATION, DIGITALGLOBE, CNES DISTRIBUTION AIRBUS DS

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Mule Creek State Prison
Stormwater Investigation
Ione, California

Recommended Actions Detail

SHN 516025.105

October 2019 | Figure4H_RepairsDetail | Figure 23-4H

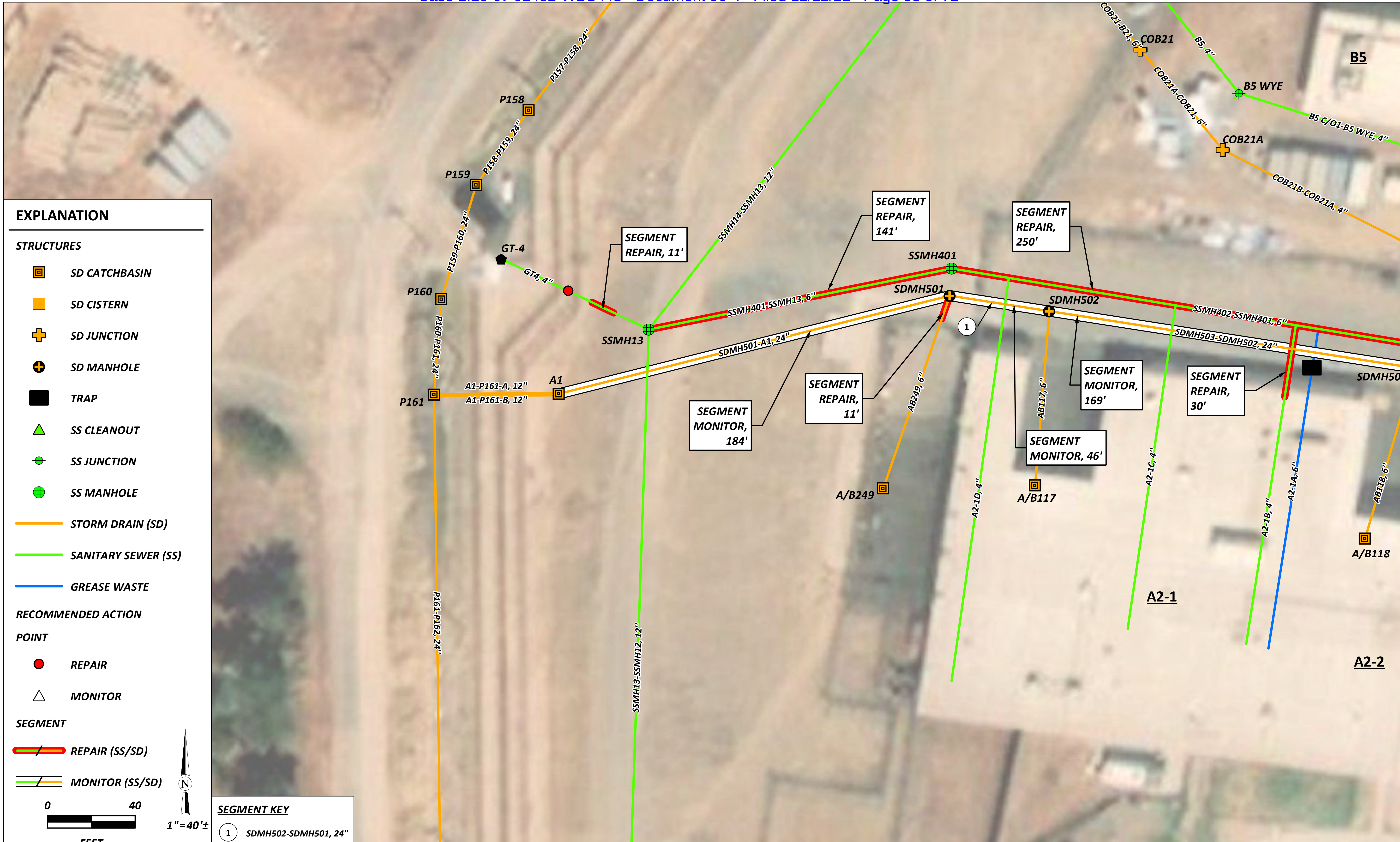

IMAGE SOURCE: MICROSOFT CORPORATION, DIGITALGLOBE, CNES DISTRIBUTION AIRBUS DS

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Mule Creek State Prison Stormwater Investigation Ione, California		Recommended Actions Detail SHN 516025.105
October 2019	Figure5C_RepairsDetail	Figure 23-5C

Path: \\eureka\projects\GIS-Files\Redding\2016\516025.105_MuleCreekCCTV\PROJ_MXD\Report\Scale40_Repairs\Figure5C_RepairsDetail.mxd User Name: pgustavson DATE: 10/30/19, 1:30PM

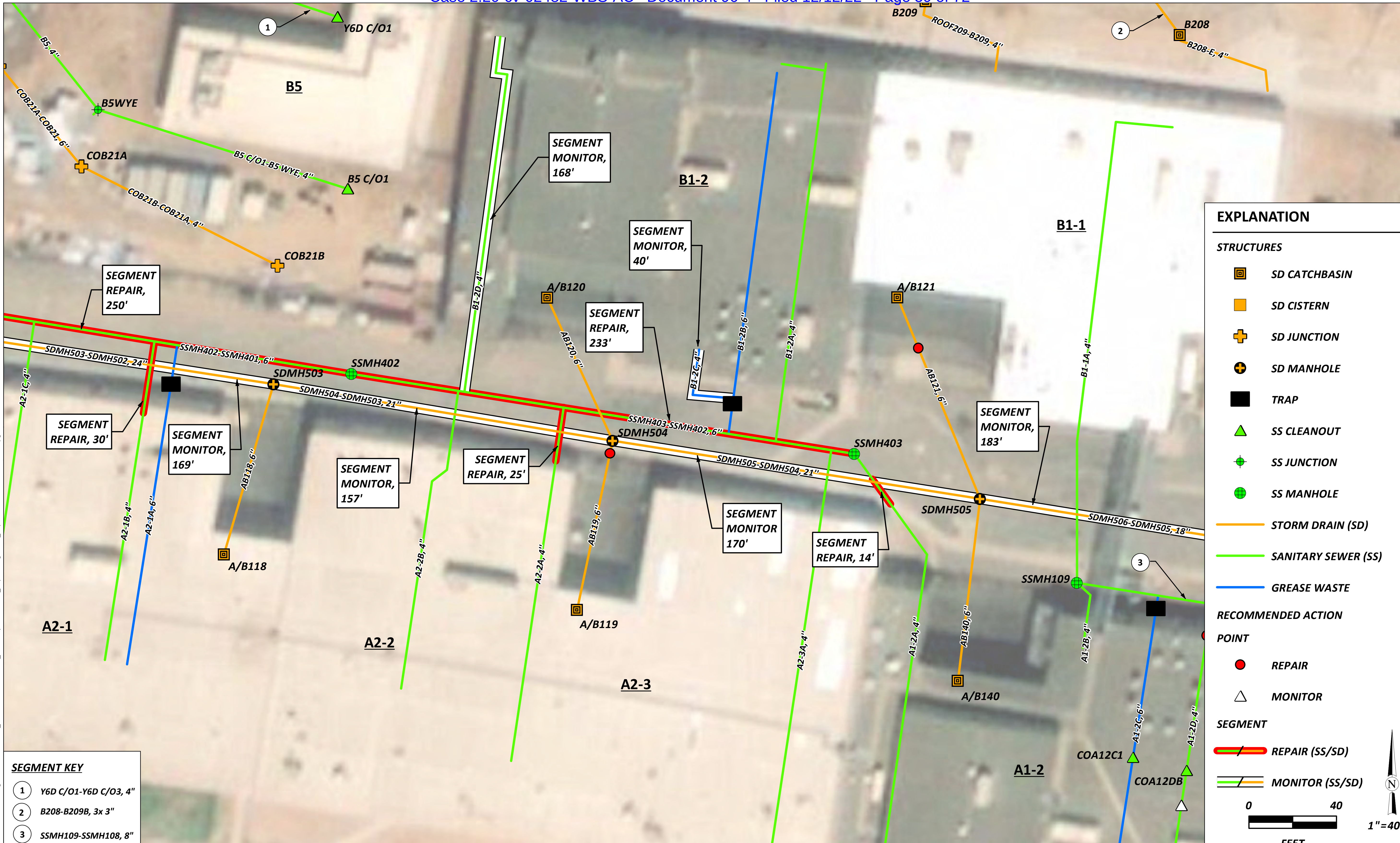

IMAGE SOURCE: MICROSOFT CORPORATION, DIGITALGLOBE, CNES DISTRIBUTION AIRBUS DS

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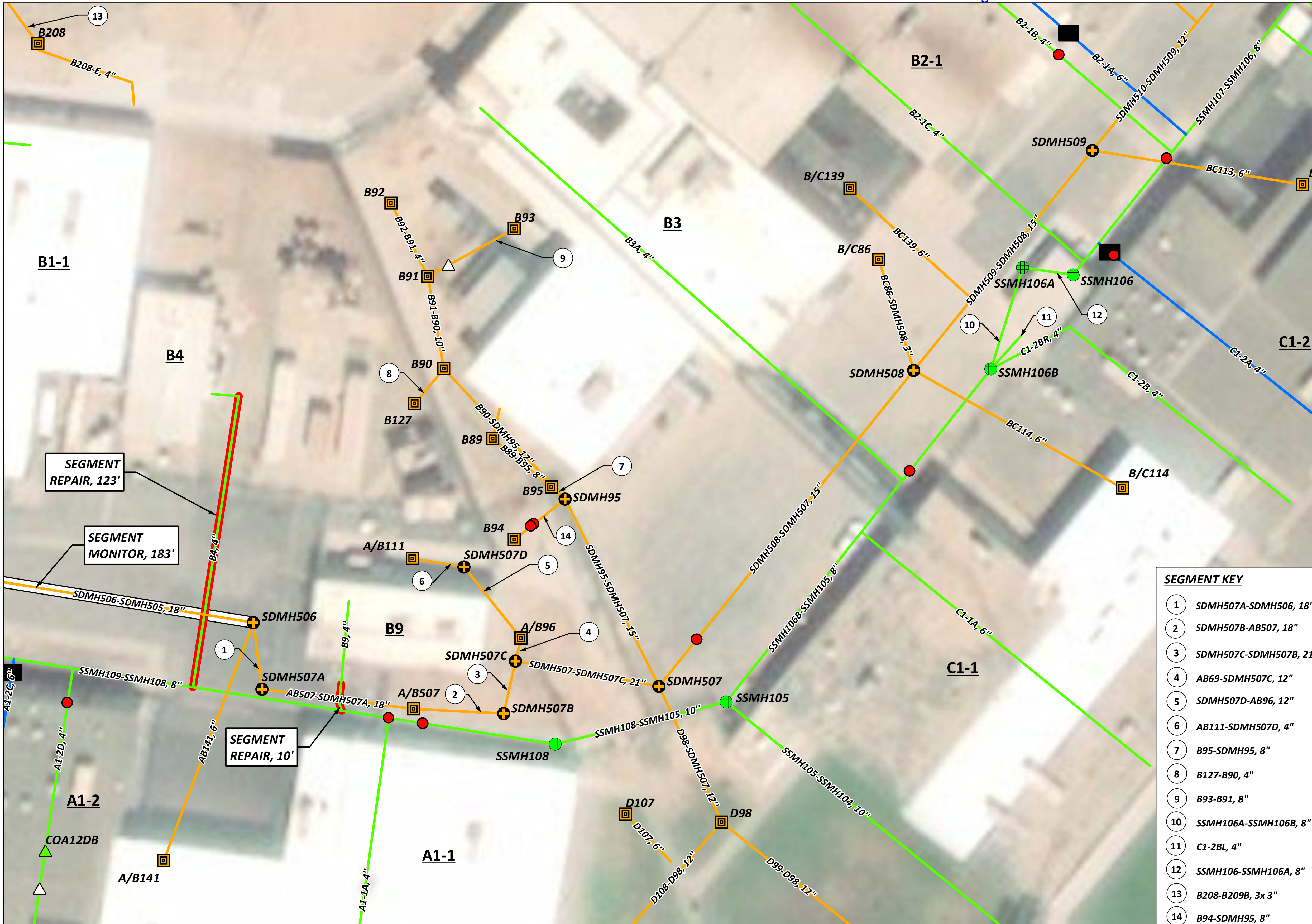
Mule Creek State Prison
Stormwater Investigation
Ione, California

Recommended Actions Detail

SHN 516025.105

October 2019 | Figure5D_RepairsDetail | Figure 23-5D

Path: \\eureka\projects\GIS-Files\Redding\2016\516025.105_MuleCreekCCTV\PROJ_MXD\Report\Scale40_Repairs\Figure5D_RepairsDetail.mxd User Name: pgustavson DATE: 10/30/19, 1:30PM



SEGMENT KEY

1. SDMH507A-SDMH506, 18"
2. SDMH507B-AB507, 18"
3. SDMH507C-SDMH507B, 21"
4. AB69-SDMH507C, 12"
5. SDMH507D-AB96, 12"
6. AB111-SDMH507D, 4"
7. B95-SDMH95, 8"
8. B127-B90, 4"
9. B93-B91, 8"
10. SSMH106A-SSMH106B, 8"
11. C1-2BL, 4"
12. SSMH106-SSMH106A, 8"
13. B208-B209B, 3x 3"
14. B94-SDMH95, 8"

EXPLANATION

STRUCTURES

- SD CATCHBASIN
- SD CISTERN
- SD JUNCTION
- SD MANHOLE
- TRAP
- SS CLEANOUT
- SS JUNCTION
- SS MANHOLE
- GREASE WASTE
- STORM DRAIN (SD)
- SANITARY SEWER (SS)

RECOMMENDED ACTION

POINT

- REPAIR
- MONITOR

SEGMENT

- REPAIR (SS/SD)
- MONITOR (SS/SD)

0 40

FEET

1"=40'±

N

IMAGE SOURCE: MICROSOFT CORPORATION, DIGITALGLOBE, CNES DISTRIBUTION AIRBUS DS

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SHN

Mule Creek State Prison
Stormwater Investigation
Ione, California

Recommended Actions Detail

SHN 516025.105

October 2019 | Figure5E_RepairsDetail | Figure 23-5E

Path: \\eureka\projects\GIS-Files\Redding\2016\516025.105_MuleCreekCCTV\PROJ_MXD\Report\Scale40_Repairs\Figure5E_RepairsDetail.mxd User Name: pgustavson DATE: 10/30/19, 1:30PM

Path: \\eureka\projects\GIS-Files\Redding\2016\516025.105_MuleCreekCCTV\PROJ_MXD\Report\Scale40_Repairs\Figure5F_RepairsDetail.mxd User Name: pgustavson DATE: 10/30/19, 1:30PM

IMAGE SOURCE: MICROSOFT CORPORATION, DIGITALGLOBE, CNES DISTRIBUTION AIRBUS DS

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SHN

Mule Creek State Prison Stormwater Investigation Ione, California		Recommended Actions Detail SHN 516025.105	
October 2019	Figure5F_RepairsDetail		Figure 23-5F

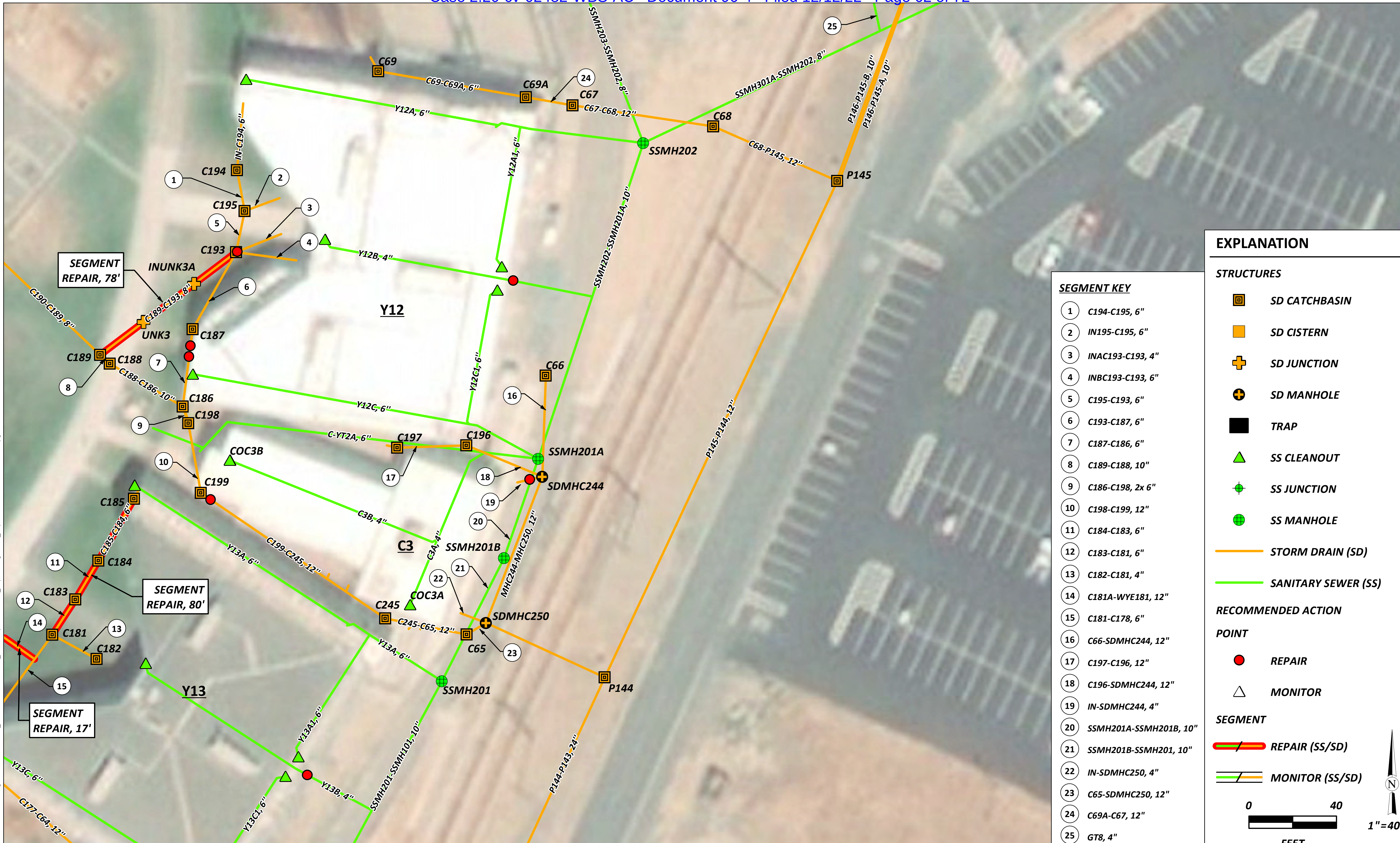

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IMAGE SOURCE: MICROSOFT CORPORATION, DIGITALGLOBE, CNES DISTRIBUTION AIRBUS DS

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Mule Creek State Prison
Stormwater Investigation
Ione, California

Recommended Actions Detail

SHN 516025.105

October 2019 | Figure5G_RepairsDetail | Figure 23-5G

MCSP0020785

Path: \\eureka\projects\GIS-Files\Redding\2016\516025.105_MuleCreekCCTV\PROJ_MXD\Report\Scale40_Repairs\Figure6C_RepairsDetail.mxd User Name: pgustavson DATE: 10/30/19, 1:30PM

IMAGE SOURCE: MICROSOFT CORPORATION, DIGITALGLOBE, CNES DISTRIBUTION AIRBUS DS

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SHN

Mule Creek State Prison
Stormwater Investigation
Ione, California

Recommended Actions Detail

SHN 516025.105

October 2019 | Figure6C_RepairsDetail | Figure 23-6C

MCSP0020786

Path: \\eureka\projects\GIS-Files\Redding\2016\516025.105_MuleCreekCCTV\PROJ_MXD\Report\Scale40_Repairs\Figure6D_RepairsDetail.mxd User Name: pgustavson DATE: 10/30/19, 1:30PM

IMAGE SOURCE: MICROSOFT CORPORATION, DIGITALGLOBE, CNES DISTRIBUTION AIRBUS DS

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SHN

Mule Creek State Prison
Stormwater Investigation
Ione, California

Recommended Actions Detail

SHN 516025.105

October 2019 | Figure6D_RepairsDetail | Figure 23-6D

Path: \\eureka\projects\GIS-Files\Redding\2016\516025.105_MuleCreekCCTV\PROJ_MXD\Report\Scale40_Repairs\Figure6E_RepairsDetail.mxd User Name: pgustavson DATE: 10/30/19, 1:30PM

IMAGE SOURCE: MICROSOFT CORPORATION, DIGITALGLOBE, CNES DISTRIBUTION AIRBUS DS

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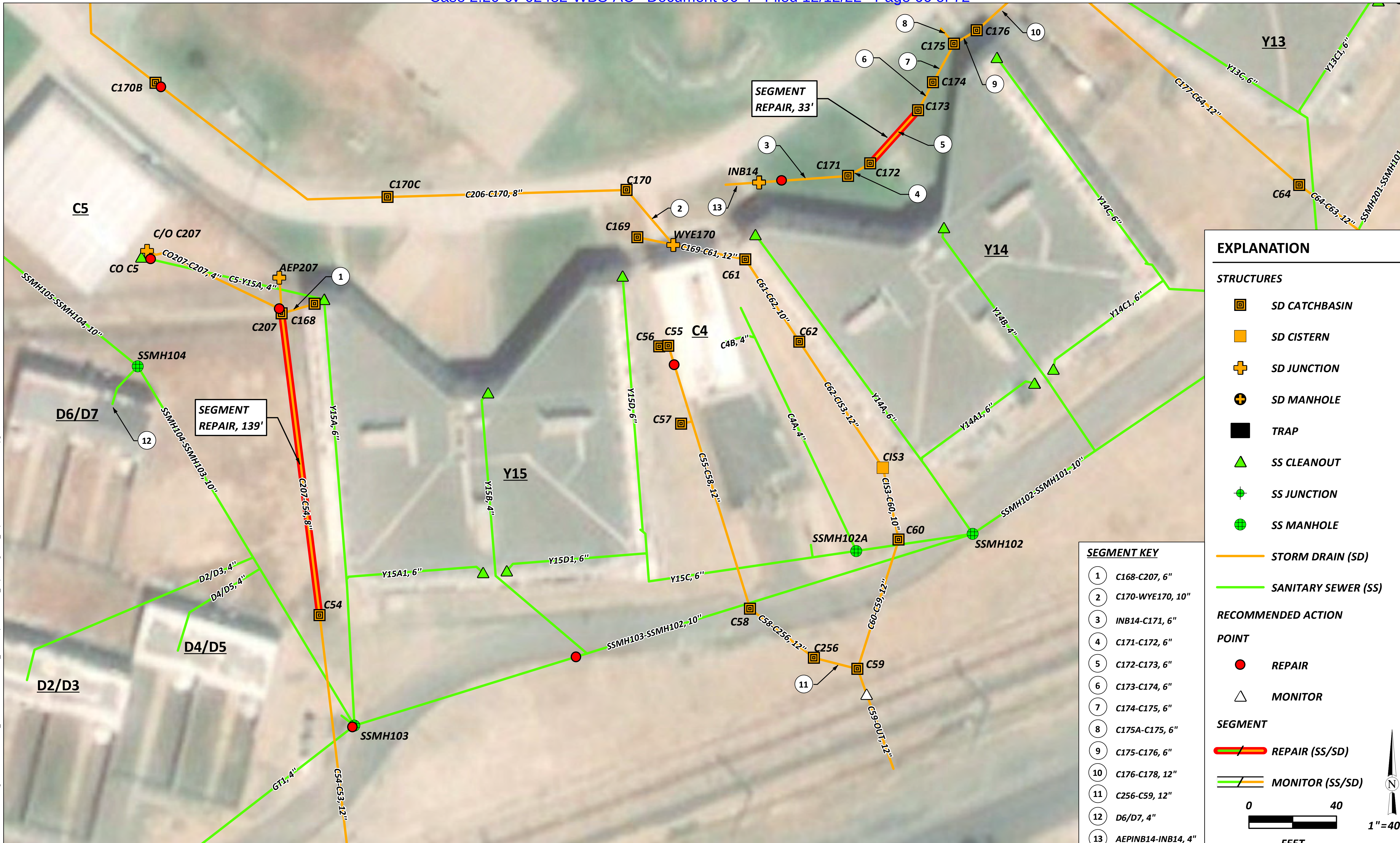
Mule Creek State Prison
Stormwater Investigation
Ione, California

Recommended Actions Detail

SHN 516025.105

October 2019 | Figure6E_RepairsDetail | Figure 23-6E



Path: \\eureka\projects\GIS-Files\Redding\2016\516025.105_MuleCreekCCTV\PROJ_MXD\Report\Scale40_Repairs\Figure6F_RepairsDetail.mxd User Name: pgustavson DATE: 10/30/19, 1:30PM

IMAGE SOURCE: MICROSOFT CORPORATION, DIGITALGLOBE, CNES DISTRIBUTION AIRBUS DS

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SHN

Mule Creek State Prison
Stormwater Investigation
Ione, California

Recommended Actions Detail

SHN 516025.105

October 2019 | Figure6F_RepairsDetail | Figure 23-6F

Path: \\eureka\projects\GIS-Files\Redding\2016\516025.105_MuleCreekCCTV\PROJ_MXD\Report\Scale40_Repairs\Figure6G_RepairsDetail.mxd User Name: pgustavson DATE: 10/30/19, 1:30PM

IMAGE SOURCE: MICROSOFT CORPORATION, DIGITALGLOBE, CNES DISTRIBUTION AIRBUS DS

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Mule Creek State Prison Stormwater Investigation Ione, California		Recommended Actions Detail SHN 516025.105
October 2019	Figure6G_RepairsDetail	Figure 23-6G

MCSP0020790

Path: \\eureka\projects\GIS-Files\Redding\2016\516025.105_MuleCreekCCTV\PROJ_MXD\Report\Scale40_Repairs\Figure7C_RepairsDetail.mxd User Name: pgustavson DATE: 10/30/19, 1:30PM

IMAGE SOURCE: MICROSOFT CORPORATION, DIGITALGLOBE, CNES DISTRIBUTION AIRBUS DS

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SHN

Mule Creek State Prison Stormwater Investigation Ione, California		Recommended Actions Detail SHN 516025.105
October 2019	Figure7C_RepairsDetail	Figure 23-7C

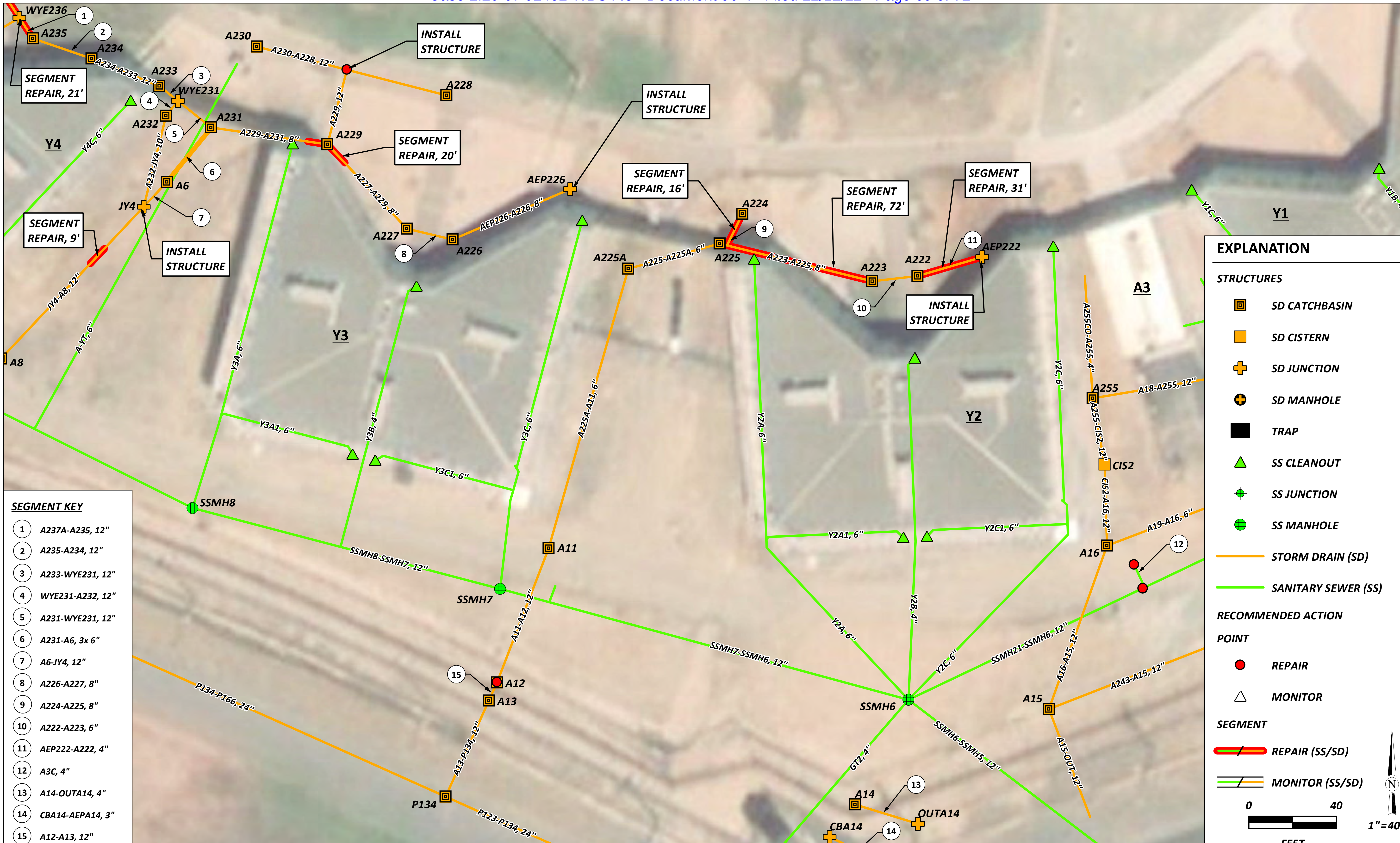

IMAGE SOURCE: MICROSOFT CORPORATION, DIGITALGLOBE, CNES DISTRIBUTION AIRBUS DS

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SHN

Mule Creek State Prison
Stormwater Investigation
Ione, California

Recommended Actions Detail

SHN 516025.105

October 2019 | Figure7D_RepairsDetail | Figure 23-7D

IMAGE SOURCE: MICROSOFT CORPORATION, DIGITALGLOBE, CNES DISTRIBUTION AIRBUS DS

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SHN

Mule Creek State Prison
Stormwater Investigation
Ione, California

Recommended Actions Detail

SHN 516025.105

October 2019	Figure7E_RepairsDetail	Figure 23-7E

Path: \\eureka\projects\GIS-Files\Redding\2016\516025.105_MuleCreekCCTV\PROJ_MXD\Report\Scale40_Repairs\Figure7E_RepairsDetail.mxd User Name: pgustavson DATE: 10/30/19, 1:31PM

Path: \\eureka\projects\GIS-Files\Redding\2016\516025.105_MuleCreekCCTV\PROJ_MXD\Report\Scale40_Repairs\Figure7F_RepairsDetail.mxd User Name: pgustavson DATE: 10/30/19, 1:31PM

IMAGE SOURCE: MICROSOFT CORPORATION, DIGITALGLOBE, CNES DISTRIBUTION AIRBUS DS

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Mule Creek State Prison
Stormwater Investigation
Ione, California

Recommended Actions Detail

SHN 516025.105

October 2019	Figure7F_RepairsDetail	Figure 23-7F

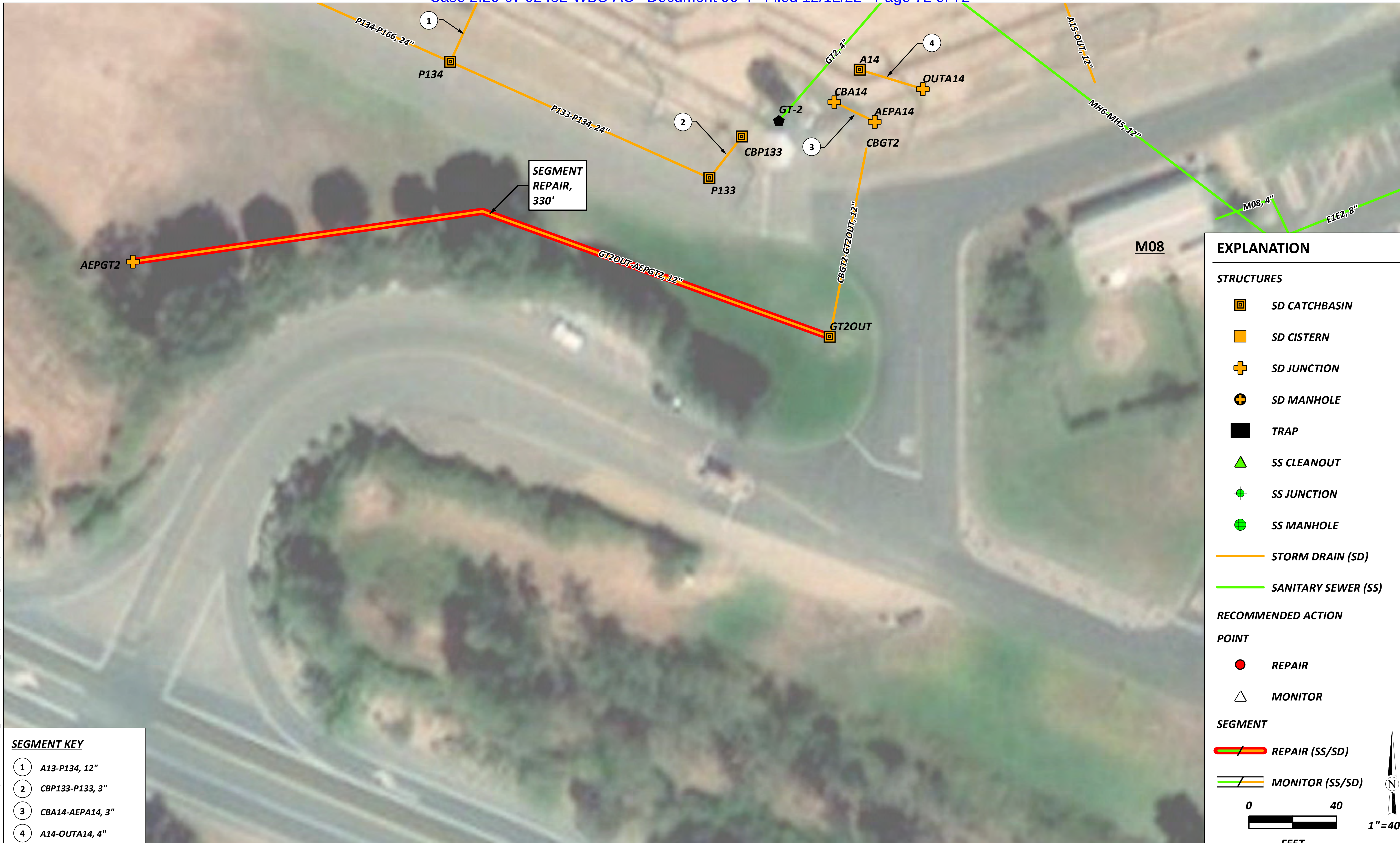

IMAGE SOURCE: MICROSOFT CORPORATION, DIGITALGLOBE, CNES DISTRIBUTION AIRBUS DS

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Mule Creek State Prison Stormwater Investigation Ione, California		Recommended Actions Detail SHN 516025.105
October 2019	Figure8D_RepairsDetail	Figure 23-8D

Path: \\eureka\projects\GIS-Files\Redding\2016\516025.105_MuleCreekCCTV\PROJ_MXD\Report\Scale40_Repairs\Figure8D_RepairsDetail.mxd User Name: pgustavson DATE: 10/30/19, 1:31PM